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A COMPARISON OF THREE-DIMENSIONAL MOCK-UP AND PAPER-PENCIL PRESENTATIONS OF READINESS TEST MATERIAL TO FIRST-GRADE STUDENTS FROM DIFFERENT SOCIOECONOMIC LEVELS

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A COMPARISON OF THREE-DIMENSIONAL MOCK-UP AND PAPER-PENCIL PRESENTATIONS OF READINESS TEST MATERIAL TO FIRST-GRADE STUDENTS FROM DIFFERENT SOCIOECONOMIC LEVELS

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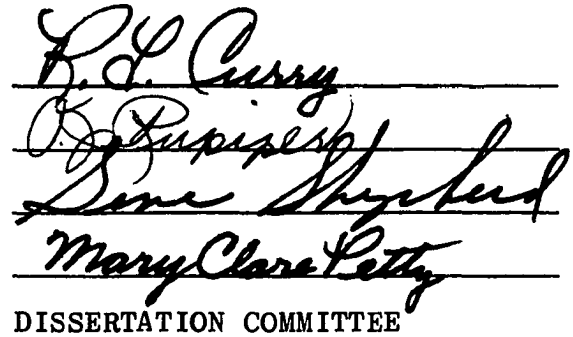

DISSERTATION COMMITTEE

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CHAPTER I

INTRODUCTION AND PROBLEM

The amount of success experienced by children as they enter elementary school depends to a large degree upon their readiness for learning and whether the particular school makes allowances for individual student differences. Each child is unique in his level of development of linguistic attainments and aptitudes, visual and auditory perception, muscular coordination and motor skills, knowledge of number and letter concepts, attention/concentration span, and the ability to follow directions. At the same time, the development of these particular learning skills can vary widely among students since there are many factors which influence the developmental processes. Some of the more influential factors are as follows: (1) mental ability (intelligence), (2) family structure and atmosphere, (3) general health and physical condition, (4) emotional and social adjustment, and (5) general background of experiences.

A study by Harris and Serwer[1] has shown that first-grade

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[1]Albert J. Harris, (Director), and Blanche L. Serwer, Comparison of Reading Approaches in First-Grade Teaching With Disadvantaged Children, The CRAFT Project, Cooperative Research Project No. 2677, The Research Foundation of the City University of New York for the Division of Teacher Education, The City University of New York, 1966.

students from different socioeconomic levels may learn in totally different ways. Using classes of students from each of the upper, middle, and lower socioeconomic levels, Harris and Serwer compared reading readiness on materials which had been presented four different ways. The four methods of presentation were as follows: (1) Basal Reader Method, (2) Basal Reader with Phonovisual Word Recognition, (3) Language-Experience with Customary Use of Audio-Visual aids, and (4) Language-Experience with Audio-Visual Supplementation. The results showed that when the three groups were equated on mental ability, age, and psychomotor control, children from the lower socioeconomic status (SES) level performed significantly better when they were presented the materials by audio-visual methods than when the materials were presented in basal reader form. However, the method of presentation made no significant difference on the reading readiness of the students from the other two SES groups. In discussing the results, Harris and Serwer attributed these findings to the lower SES group's lack of familiarity with printed material in the home where they could read or have someone read to them.

Harris and Serwer's study could have some very important implications for educators in determining children's readiness to begin the schooling process. Readiness test scores administered at the end of the Kindergarten year or the beginning of the first grade can play a very important part in determining whether a child is ready to begin first-grade work.

Such readiness tests usually include some indication of the student's level of development in each of the following areas: (1) intelligence/mental ability, (2) indices of verbal-abstract learning and reasoning abilities, (3) indications of hand-eye psychomotor development, (4) patterns of various aptitudes, (5) accumulated background of academic concepts and skills, and (6) levels of strategies for attacking learning and problem solving tasks. Such readiness tests are usually developed as paper-pencil tests to be administered in group situations. However, as indicated by Harris and Serwer's study, paper-pencil presentations of readiness test material may not be a valid indicator of readiness for those students who could perform better on the test if the testing materials were presented in a more "natural" way. One such way would be a three-dimensional simulation (Mock-Up) of the pictures, letters, numbers, symbols, etc. contained in the test booklet.

There has been much discussion concerning the measurement of a child's readiness to learn. The most common type of instrument has been the paper-pencil form of evaluation. Ylisto conducted a study in which he utilized an inventory of 150 test items (twenty-five printed word symbols with a six-stage sequence for each item).[2] This inventory was administered to 229 children in the following age groups: 82

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[2]Ingrid P. Ylisto, "An Empirical Investigation of Early Reading Responses of Young Children," in Reading and Realism, J. Allen Figurel, (Editor) Vol 13, Part I, Proceedings of the Thirteenth Annual Convention, (IRA), 1969, pp. 634-639.

Purpose of the Study

The purpose of the present study was to compare the differences in Metropolitan Readiness Test (MRT) raw scores of first-grade students' from three socioeconomic (SES) levels when the test items were presented to the students in two different ways. One presentation of the test materials consisted of a conventional presentation as a paper-pencil test. The other presentation method consisted of presenting the same test materials contained in the Form-A test booklet in the form of three-dimensional Mock-Ups. The purpose of the dual presentation of the materials was to determine whether the students were able to perform better on the readiness test materials when they were presented as three-dimensional Mock-Ups rather than in printed-page format.

Hypotheses Tested in the Study

In order to make definitive statements about the results obtained in the study it was necessary to test several null hypotheses which had been derived from two general hypotheses. The two general hypotheses were stated as follows:

Ho_1 There are no statistically significant mean differences between the six subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the Metropolitan Readiness Test (Form-A) among three socioeconomic status (SES) groups by sex.

Ho_2 There are no statistically significant correlations between the six subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the Metropolitan Readiness Test (Form-A) among three socioeconomic status (SES) groups by sex.

Investigation of the first general hypothesis (Ho_1) required the statement of the following sub-hypotheses:

Ho_1a There are no statistically significant mean differences between the upper socioeconomic status males' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_1b There are no statistically significant mean differences between the upper socioeconomic status females' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_1c There are no statistically significant mean differences between the middle socioeconomic status males' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_1d There are no statistically significant mean differences between the middle socioeconomic status females' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_1e There are no statistically significant mean differences between the lower socioeconomic status males' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_1f There are no statistically significant mean differences between the lower socioeconomic status females' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_1g There are no statistically significant mean differences between the upper socioeconomic status students' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_1h There are no statistically significant mean differences between the middle socioeconomic status students' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_1i There are no statistically significant mean differences between the lower socioeconomic status students' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_1j There are no statistically significant mean differences between the Form-A/Mock-Up gain scores computed for the upper socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test and the Form-A/Mock-Up gain scores computed for the middle socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test.

Ho_1k There are no statistically significant mean differences between the Form-A/Mock-Up gain scores computed for the upper socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test and the Form-A/Mock-Up gain scores computed for the lower socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test.

Ho_1l There are no statistically significant mean differences between the Form-A/Mock-Up gain scores computed for the middle socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test and the Form-A/Mock-Up gain scores computed for the lower socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test.

Ho_1m There are no statistically significant mean differences between the total male populations' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_1n There are no statistically significant mean differences between the total female populations' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_1o There are no statistically significant mean differences between the total students populations' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Investigation of the second general hypothesis (Ho_2) required the following sub-hypotheses:

Ho_2a There are no statistically significant correlations between the upper socio-economic status males' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_2b There are no statistically significant correlations between the upper socio-economic status females' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_2c There are no statistically significant correlations between the middle socio-economic status males' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_2d There are no statistically significant correlations between the middle socio-economic status males' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_2e There are no statistically significant correlations between the lower socioeconomic status males' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_2f There are no statistically significant correlations between the lower socioeconomic status females' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_2g There are no statistically significant correlations between the upper socioeconomic status students' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_2h There are no statistically significant correlations between the middle socioeconomic status students' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_2i There are no statistically significant correlations between the lower socioeconomic status students' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_2j There are no statistically significant correlations between the Form-A/Mock-Up gain scores computed for the upper socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up gain scores computed for the middle socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test.

Ho_2k There are no statistically significant correlations between the Form-A/Mock-Up

gain scores computed for the upper socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test and the Form-A/Mock-Up gain scores computed for the lower socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test.

Ho_2l There are no statistically significant correlations between the Form-A/Mock-Up gain scores computed for the middle socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test and the Form-A/Mock-Up gain scores computed for the lower socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test.

Ho_2m There are no statistically significant correlations between the total male populations' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Ho_2n There are no statistically significant correlations between the total female populations' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and three-dimensional Mock-Up of the test.

Ho_2o There are no statistically significant correlations between the total students populations' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

Limitations of the Study

Certain limitations were placed upon the present study. The most important of these limitations were as follows:

1. The participants in the present study were limited to first-grade students in the Midwest City Public School System; Midwest City, Oklahoma, who were enrolled in and attending school during the 1973-74 academic year.
2. The measuring instruments were limited to the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the individual items of that testing instrument and a Questionnaire By Which Socio-economic Information Was Secured From Parents for determining the participants' socioeconomic status (SES).
3. The independent variables controlled in the study were limited to the students' sex, socioeconomic level, test from (either Form-A of the MRT or a three-dimensional Mock-Up of the test materials) and grade level.

Operational Definitions

For the purposes of the present study, the following definitions of terms were offered. In some instances further explanations of terms was necessary. However, when this was the case, such explanations were offered within the context of the narrative.

(1) Metropolitan Readiness Test Scores - The six subtest and composite raw scores derived from the Metropolitan Readiness Test (Form-A) which had been administered to a population of first-grade students enrolled in the Midwest City Public School System for the 1973-74 academic year. The six subtests of the MRT are as follows:

1. Word Meaning
2. Listening
3. Matching
4. Alphabet
5. Numbers
6. Copying

(2) Three-Dimensional Mock-Up Readiness Test Scores - The six subtest and total raw scores derived from a three-dimensional Mock-Up of the Metropolitan Readiness Test (Form-A) which had been administered to a population of first-grade students enrolled in the Midwest City Public School System for the 1973-74 academic year.

(3) Form-A/Mock-Up Gain Score - The arithmetic difference between the Metropolitan Readiness Test (Form-A) raw scores and the three-dimensional Mock-Up readiness test raw scores as computed for each first-grade student participating in the study.

(4) Socioeconomic Level/Socioeconomic Status (SES) - The socioeconomic category or level ascribed to student participants from their responses to the

Questionnaire By Which Socioeconomic Information Was Secured From Parents. This questionnaire collects information in the following four areas:

1. Occupation
2. Educational level
3. House type
4. Dwelling Area

The information collected may be used to place all participants into one of three categories or levels--lower socioeconomic status, middle socioeconomic status, and upper socioeconomic status.

Assumptions

Several assumptions were made in the present study. The primary assumptions made were as follows:

1. The concept of readiness can be measured with a standardized testing instrument.
2. The Metropolitan Readiness Test (Form-A) is a valid and reliable measure of school readiness for first-grade students.
3. A three-dimensional Mock-Up of the items appearing on the Metropolitan Readiness Test (Form-A) was a valid and reliable measure of school readiness among first-grade students.
4. The sample of first-grade students was large enough and was chosen by a method which would allow generalizing the results to other populations of first-grade students.
5. The first-grade students chosen for the study

constituted a normal population of first-grade students within the Midwest City Public School System.

A review of related research was conducted in order to establish a theoretical base for the present study and to ascertain the extent of previous research efforts in the area of readiness testing. The results of the literature search are presented in Chapter II.

CHAPTER II

REVIEW OF RELATED LITERATURE

The Concept of Readiness

The concept of readiness had its beginnings in the early 1920's. The first writings and studies were obviously a reflection of the thinking of those individuals who preceded the ones given credit for the term.

Pestalozzi thought that it was improper to present educational material to children and leave the retention of these materials to chance.[1] He felt that it was important to find out the capacities of each individual child and to determine which stage of education he had reached. Pestalozzi further believed that students progressed from simple to difficult educational tasks.

A definition of readiness could simply be--a state of preparedness for learning. The specific term "reading readiness" appeared about 1925 and with it the idea that there are preparations to be made before the child is formally taught.

Readiness for learning is a factor at all educational levels. Readiness programs limited to kindergarten and the first grade are not enough. The erratic nature of the child's

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[1]Johann Heinrich Pestalozzi, How Gertrude Teaches Her Children, (Syracuse, New York: C. W. Bardeen Co., 1898), p. 249.

development in the various subject areas is all too apparent. As Cook has demonstrated, intra-individual variability is 80 per cent as great as inter-individual variability.[2] A curriculum which places a standard and inflexible series of topics by grade level and which by implication results in a grade expectancy that is not meeting the needs of children. The curriculum must be arranged so that it leaves no child behind and holds none back.[3]

Deputy, in 1930, conducted the first major experimental study of reading readiness.[4] He developed a formula for predicting first-grade reading achievement from scores on the following subtests of a standardized reading test: mental, visual, visual-association, word selection, visual-auditory association and concept comprehension and recall. He found that 80 per cent of the children who made weighted scores of 47 or less, as ascertained by his prediction formula, failed in first grade reading.

Psychologists, too, have made an important contribution to the concept of readiness in learning. Thorndike developed several laws of learning. One was known as the Law of

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[2]Walter W. Cook, "Individual Differences and Curriculum Practice," Journal of Educational Psychology 39 (1948), pp. 141-48.

[3]Glenn M. Blair and R. Steward Jones, Readiness Encyclopedia of Educational Research, 3rd Edition, (New York: The Macmillan Co., 1969), pp. 1081-1086.

[4]Erby C. Deputy, "Predicting First Grade Reading Achievement," (Teachers College Columbia University, New York, 1930), pp. 120-125.

Readiness. This law describes the circumstances under which an individual will become annoyed or satisfied during the learning process. Thorndike's law has three parts, which are as follows:

> (a) When a conduction unit is ready to conduct, conduction by it is satisfying, if nothing is done to alter its action; (b) For a conduction unit ready to conduct, not to conduct is annoying and provokes whatever responses nature provides in connection with that particular lack; (c) When a conduction unit unready for conduction is forced to conduct, conduction by it is annoying.[5]

This law of readiness stresses that frustration or satisfaction of the person depends to a great extent upon what he is prepared to do. An individual is unready until he has the appropriate mental set for a particular educational experience.

Morphett and Washburne conducted a study in 1931 concerning the relationship between the student's readiness to read and their mental age. They concluded that children should not be taught to read until they reach a mental age of six and one half years.[6] However, Morphett and Washburne's study failed to settle the issue of reading readiness and mental age. There has always been a great deal of controversy over when a child is ready to formally learn. Gates,

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[5]Edward L. Thorndike, Theories of Learning, Ernest R. Hilgard and Gordon H. Bower, "Thorndike's Connectionism," (Appleton-Century-Crofts Education Division, Meredith Corporation, 1966), Chapter 2.

[6]M. V. Morphett and C. Washburne, "When Should Children Begin to Read?" Elementary School Journal, 31 (1931) pp. 496-503.

in 1937, conducted a reading study.[7] He concluded that a mental age of six or six and one half years was not a necessary prerequisite for reading some types of materials. Even though Gates was and is highly respected, his evidence on this subject was for the most part ignored.

In the late 1950's USSR's Sputnik triumph caused Americans to become more tough-minded and many demanded that children start their formal education at a much earlier age than had previously been practiced. In the early 1960's aggressive questions about individual student differences caused Gate's research to be re-evaluated and re-emphasized. An in-depth study of readiness also brought out various types of readiness such as physiological, intellectual, and experiential readiness.

Physiological Readiness

A person's physical condition is very important to the learning process, and has an effect on everything he does. There are several aspects of physical growth that concern the readiness to learn. First, there is the total physical maturation. Second, there is the matter of sex differences in learning. Third, there are specific deficiencies, defects and illnesses.

Eames conducted a study of 100 randomly selected nine

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[7]A. I. Gates, "The Necessary Mental Age for Beginning Reading," Elementary School Journal, 37 (1937), pp. 497-508.

year olds to compare the effects of premature birth on reading ability.[8] The premature birth group had more neurological lesions, defective vision, slower recognition speed and certain lateral dominance variations than the normal groups.

Olsen studied twenty-eight boys and twenty-eight girls from five to eight years of age to compare the relationship between growth in reading and total physical growth patterns of the child.[9] The results showed that as a whole reading tends to be an integral part of the total physical growth of children.

Intellectual Readiness

The importance of the relationship between intelligence and reading has been the subject of numerous investigations. Many investigators claim that a mental age of from six to six and one half years is necessary for success in beginning reading. At the same time it is doubtful that any one mental age is a guarantee of beginning reading success.

Bigelow utilized the Modern School Achievement Test scores for one group of eighty-eight (N=88) children and another group of thirty-nine (N=39) children to compare school

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[8]Thomas H. Eames, "Comparisons of Children of Premature and Full Term Birth Who Fail in Reading," Journal of Educational Research, 38 (March, 1945), pp. 506-508.

[9]William C. Olsen, "Reading as a Function of the Total Growth of the Child," in William S. Gray, Reading and Pupil Development, "Summentary Educational Monographs," (No. 51), (Chicago: University of Chicago Press, 1940), pp. 1-39.

readiness of younger students to older students.[10] She found that children who are chronologically between six years and six years and four months of age and who have an intelligence quotient (I.Q.) of 110 or over are virtually certain to succeed in school. However. younger children with IQ's below 110 have fewer chances of success in school.

Other research has indicated that reading readiness may be related to levels of mental development rather than to rates of mental development. For instance, a two-year old child could have an exceptionally high I.Q. but probably would not have the necessary mental level to learn to read.

Bond and Tinker reported that by the end of the first grade the correlation between intelligence (I.Q.) and reading ability is generally around .35, but by the sixth grade it increases to .65.[11]

Experiential Readiness

The child comes to school with his own peculiar set of experiences. Some children will have traveled, been taught to make observations, and have been reared in a home environment which is conducive to learning.

Miller studied the relationship of maternal styles of

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[10]Elizabeth B. Bigelow, "School Progress of Under-Age Children," Elementary School Journal, 35 (November, 1934), pp. 186-192.

[11]Guy L. Bond and Miles A. Tinker, Reading Difficulties: Their Diagnosis and Correction, (New York, Appleton, Century, Crofts, Inc., 1957), p. 146.

communication and maternal control systems to the child's reading readiness and subsequent reading achievement in the first grade.[12] Miller utilized home interviews, Metropolitan Readiness Test, Gilmore Oral Reading Test and four subtests of the Stanford Achievement Test. The sample included fifty-five mothers and their fifty-five kindergarten children. The results showed that the way the mother teaches the child during the period of structured mother-child interaction was significantly related to the child's reading readiness.

Some children are exposed to books and printed materials from birth. Other children have not had the opportunity to use paper-pencil, crayons, scissors or paste. The teacher must contend with these differences as she strives to meet the young child's level of readiness.

Hilliard and Troxell conducted a study utilizing information about the student's background and intelligence test scores.[13] They used seventy (N=70) kindergarten children to ascertain the relationship between "rich" or "meager" socio-economic backgrounds and the child's success in first grade reading. They found the rich-background group had slightly higher mental ages, but the difference was not significant.

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[12]Wilma H. Miller, "Relationship Between Mother's Style of Communication and Her Control System to the Child's Reading Readiness and Subsequent Reading Achievement in First Grade," (Wisconsin State University at La Crosse), Reading and Realism, (IRA, 1969), p. 816.

[13]George H. Hilliard and Eleanor Troxell, "Informational Background As a Factor in Reading Readiness and Progress," Elementary School Journal, 38 (December, 1937), p. 255.

Hildreth utilized an information questionnaire with forty-seven (N=47) first-grade students to determine which items the students would answer most successfully.[14] She found that the highest degree of success was found in those items most familiar to the child, the items most often repeated and heard and, consequently, the items most frequently overlearned.

Measurements of Readiness

Buros' Mental Measurements Yearbooks list over twenty reading readiness tests that are in print.[15] Actually it is hard to decide which of the many factors seem to contribute most to successful learning experiences.

Each of the readiness tests has subtests included which the authors believe are necessary for measuring the skills children need in order to achieve in beginning reading. The tests include measurements of visual discrimination of letters and words and measurements of auditory discrimination.

Several readiness tests also attempt to measure how well children understand language. The examiner asks a question or makes a statement to which the children are asked to respond. The children must understand the language and must be

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[14]Gertrude Hildreth, "Information Tests of First Grade Children," Childhood Education IX (May, 1933), pp. 416-420.

[15]Oscar K. Buros, editor, Seventh Mental Measurement Yearbook, (Highland Park, N. J.: Gryphon Press, 1972), pp. 161-169.

able to "read" the pictures and follow directions. Some of the children may know the correct answer, but not mark them correctly. Only by examining the individual tests would the teacher understand why the child makes a certain response.[16] Each test purports to measure reading readiness. While it is true that they do measure some of the skills needed for reading, how effectively these skills are measured is not clear. Dykstra reported that a very small relationship existed among the measures of auditory discrimination taken from different test batteries.[17]

The question is how well do readiness tests really predict future reading success? Independent investigators, Karlin and others, report predictive validity from below .30 to as high as about .75, with most indices ranging between .40 and .60.[18]

Even when the coefficients of correlation are high, it is not possible to predict how well a certain individual child will fare in reading, since there are too many variables to make accurate predictions. Intelligence test scores are about as useful as readiness tests for predicting success

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[16]Elizabeth A. Zaruba, "Objective and Subjective Evaluation at Grade One," The Reading Teacher, 22 (October, 1968), pp. 50-54.

[17]Robert Dykstra, "Auditory Discrimination Abilities and Beginning Reading Achievement," Reading Research Quarterly, 1 (Spring, 1966), pp. 5-34.

[18]Robert Karlin, "The Prediction of Reading Success and Reading Readiness Tests," Elementary English, 34 (May, 1957), pp. 320-22.

in reading. This indicates that the intelligence tests measure some of the same areas of learning as reading readiness tests.

Reading readiness tests will yield information about student performance on specified skills if the test items measure what they are supposed to measure. It would be of greater value if the teacher could recognize the specific weakness and then teach toward improving that weakness.

Some investigators [19, 20, 21, 22] searched for a battery of tests which could be more discriminating than single tests to predict readiness. The batteries selected most often are as follows: Pencil Use; Bender Visuo-Motor Gestalt Test; Wepman Auditory Discrimination Test; Number of Words Used in a Story; Categories; Horst Reversals Test; Gates Word Matching Test; Word Recognition I, II; and Word Reproduction. These instruments were used to develop a predictive index for each student. Fifty-three (N=53) children were

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[19]Russell G. Stauffer and W. D. Hammond, Effectiveness of a Language Arts and Basic Reader Approach to First Grade Reading Instruction, (Newark, Del.: University of Delaware, 1965), pp. 110-125.

[20]Roger E. Johnson, "The Validity of the Clymer-Barrett Prereading Batter," The Reading Teacher, 22 (April, 1969), pp. 609-14.

[21]Patricia S. Koppman and Margaret H. La Pray, "Teacher Ratings and Pupil Reading Readiness Scores," The Reading Teacher, 22 (April, 1969), pp. 603-08.

[22]Max S. Henig, "Predictive Value of a Reading-Readiness Test and of Teacher's Forecasts," Elementary School Journal, 50 (September, 1949), pp. 41-46.

tested and the predictive index identified fourteen of the fifty-three as potential reading failures. Ten of the children did experience difficulty in learning to read, while the index failed to identify one reading failure. Additional data must be collected before it can be determined if this battery of tests is a better predictor of reading readiness than any one single test.

Cognitive Learning and Readiness

Perhaps one of the most important theorists of childrens' capability of mastering educational tasks is Bruner.[23] He stated that "any subject can be taught effectively in some intellectually honest form to any child at any stage of development." Bruner's argument implied that even at the preschool level, a child has learned to deal with complex reality and of using the categories used by other people. With realization that the child has accomplished certain developmental tasks comes the need to analyze each child's level of thinking.

Piaget inspired the study of the development of children's thinking and thus a more realistic view toward readiness.[24] He was concerned with the developmental stages

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[23]Jerome S. Bruner, The Process of Education, (Cambridge, Mass.: Harvard University Press, 1960), pp. 321-340.

[24]J. Piaget, "Origins of Intelligence in Children," in D. S. Palermo and L. P. Lipsitt, Research Readings in Child Psychology, (New York: Holt, Rinehart and Winston, Inc., 1963), pp. 83-96.

through which children pass as they learn to accomodate the various stimuli which confront them. Piaget suggested that it is important to find the child's level of ability to function on the symbolic level as well as through concrete manipulation. Piaget called the preschool years the preoperational phases, and Sigel has called it the preoperational thought period.[25] During these early years the child used language to help organize and adjust his world. The child must have experiences and thinking ability to organize his experiences with meaning. Johnson states:

> Several important points relevant to readiness for learning to read arise from Piaget's work. First, the child must reach his own understandings; they cannot be handed to him ready-made. Second, mere acquisition of concrete experiences will not yield understandings; the elements of the experiences must be identified and processed (for example, categorized). Third, in spite of the child's apparently innate capacity for acquiring the understandings, he may need considerable help in learning to process his experiences. Fourth, this processing will require that the child handle a variety of types of stimuli in an intergrated rather than an isolated fashion. Fifth, because of his restricted experiences and thinking abilities, there are limits beyond which a child cannot go to a particular stage of development.[26]

Ausubel stressed the importance of beginning where the

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[25]Max Siegel, "The Personality Structure of Children with Reading Disabilities as Compared with Children Presenting Other Clinical Problems." The Nervous Child, 10 (No. 3-4, 1954) pp. 409-414.

[26]Marjorie Seddon Johnson, "A Study of Diagnostic and Remedial Procedures in a Reading Clinic Laboratory School." Journal of Educational Research, 48 (April, 1955) pp. 565-578.

learner is.[27] In planning an educational curriculum, he would eliminate all study which the learner cannot organize because of his stage of cognitive development. Ausubel contended that a child should master present materials before attempting new ones. Ausubel cited further research results which show that overlearning facilitates the transfer of prior learning to new tasks.

Affective Learning and Readiness

A second major area of learning is classified as affective learning. Affective learning involves the development of beliefs, attitudes, values, feelings of self, etc. The child's growth in affective learning is important to the smooth progression of the learning process. For example, if the child feels secure, his behavior patterns will be consistent and he will demonstrate this consistency in his relationships with others. The child will grow from one level of learning to the next with little frustration.

Harris, Rose, Clark and Valasek utilized a home-duties survey questionnaire with approximately 1,500 children to compare children with high and low levels of responsibility.[28] They found that responsibility, as measured in their study,

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[27]David P. Ausubel, "A Teaching Strategy for Culturally Deprived Pupils: Cognitive and Motivational Consideration," School Review, 81 (Winter, 1963), pp. 454-63.

[28]Dale B. Harris, A. M. Rose, Kenneth E. Clark and Frances Valasek, "Personality Differences Between Responsible and Less Responsible Children," Journal of Genetic Psychology, 87 (1955), pp. 103-109.

was more associated with the quality of personal and emotional relationships between the parent and child than it was with the number of home chores performed. The study conducted by Harris et al., phrased in terms of social behavior, was closely associated with general emotional and personal adjustment.

Radke-Yarros, Trager and Davis utilized interviews with the Social Episodes Test in two sessions that included 250 children of kindergarten, first, and second grades, to study social perceptions and attitudes.[29] They found that children's perceptions of groups developed out of adult values and the status quo and that these perceptions were learned very early in life.

Psychomotor Learning and Readiness

A third major area of learning is generally classified as psychomotor learning. This type of learning is simply learning to manipulate the various muscles, bones and tendons of the body in the manner desired by the learner (walking, talking, etc.).

Learning not only requires that a person have experiences but that they have good general health, glandular and neurological functioning, speech development and cerebral dominance. These same areas of development are important to the readiness level of first-grade children.

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[29]Marian Radke-Yarros, Helen G. Trager and Hadasah Davis, "Social Perceptions and Attitudes of Children," Genetic Psychology Monographs, 40 (1949), pp. 327-447.

There have been many studies concerned with the relationships of reading disability and heart conditions, nutritional and circulatory problems, nerve disorders, hemoglobin variations and vitamin deficiencies. Some specific conditions found to be detrimental to reading ability were poor teeth, infected tonsils, adenoids, rheumatic fever and allergies causing prolonged illnesses. Johnson found that sixty-five per cent of her clinical reading cases had experienced serious or recurrent illnesses.[30]

Several writers have suggested that more poor readers than good readers have endocrine disturbances. Witty and Kopel believed that the apparent association of reading deficiencies and lack of motor coordination may have as an underlying cause the dysfunction of the endocrine glands.[31]

Cavanaugh found that in 660 children in the Santa Barbara County (California) schools eighteen per cent had thyroid deficiencies sufficiently severe to cause two or more years retardation in physical maturity.[32] He concluded that thyroid deficiencies accounted for seventy-five per cent of all behavior, performance, and social-adjustment problems in children.

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[30]Marjorie S. Johnson, "A Study of Diagnostic and Remedial Procedures in a Reading Clinic Laboratory School," pp. 565-578.

[31]Paul Witty and David Kopel, "Factors Associated with the Etilogy of Reading Disability," Journal of Educational Research, 29 (February, 1936), pp. 119-134.

[32]Lyman A. Cavanaugh, "Reading Behavior with Regard for Endocrine Imbalances," in The Thirteenth Yearbook of the Claremont College Reading Conference, (Claremont, California: 1948), pp. 95-102.

The research on cerebral dominance and reading has been more concerned with cross laterality and lack of dominance than with lateral dominance. Lateral dominance refers to the consistent use of and preference for the muscles of one side of the body. Cross laterality refers to the condition in which the dominant hand and the dominant eye are on opposite sides of the body. A third possibility is lack of dominance of either hand resulting in ambidexterity.

Orton points out that the child develops memory traces of "engrams" for words.[33] These engrams are stored in the dominant hemisphere of the brain. The non-dominant hemisphere of the brain usually reflects (mirror images) of the engrams stored in the dominant hemisphere and injury to the non-dominant hemisphere does not lead to reading disability. Orton hypothesized that if cerebral dominance were well developed by the time reading began, reading difficulty would probably not occur, even if there was damage to the non-dominant hemisphere of the brain. However, reversals could occur if the child read words on one occasion with a left orientation and on another occasion with a right orientation.

Not all studies show a positive relationship between mixed laterality or lack of dominance and poor reading. Stevenson and Robinson studied sixty kindergarten children

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[33]Samual T. Orton, "An Impediment to Learning to Read--A Neurological Explanation of the Reading Disability," School and Society, 28 (September, 1928), pp. 286-290.

of high intellect (bright) and high socioeconomic level.[34] They found that children who preferred the right hand and the left eye tended to move from right to left when performing physical activities and that they needed to be remined of the left-to-right progression in readiness activities and in reading. The bright children made the adaptation and there was no relationship between right hand preference and eight common reversal errors on reading achievement.

Gates suggested that the concepts of left and right handedness should be established before the child begins actual reading.[35] If such development has occurred the child is well on his way to becoming a good reader at an early age.

Harris tested 316 children with severe reading disabilities and 245 unselected children.[36] He found that among seven and eight year old children there were twice as many instances of lack of hand dominance among the disability cases as among the unselected cases. Among the nine to ten year old children the proportion was three to one.

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[34]Lillian P. Stevenson and Helen M. Robinson, "Eye-Hand Preference, Reversals, and Reading Progress," Clinical Studies in Reading, II Supplementary Educational Monographs, No. 77 (Chicago: University of Chicago Press, 1953), pp. 83-88.

[35]Arthur I. Gates, The Improvement of Reading, 3rd Edition, (New York: The Macmillan Company, 1950), pp. 124-129.

[36]Albert J. Harris, "Lateral Dominance, Directional Confusion, and Reading Disability," Journal of Psychology, 44 (October, 1957), pp. 283-294.

Variables Which Affect Readiness for Learning

Maturation and Readiness

Learning at any age is successfuly only when the person is ready. After a certain stage of development has been reached, the child is able to do easily and quickly those tasks which would not be done with much training earlier. He has a feeling of satisfaction and accomplishment and as a result is eager to undertake new learning experiences.

As a result of an extensive study of reading instruction in the United States, Austin and Coleman, in the second Harvard report, made the following recommendations:

> (1) That all school systems establish kindergartens; (2) that appropriate reading activities be initiated for those children who are already reading and for those who appear to be ready to begin reading, and (3) that the kindergarten program be adjusted accordingly to each child's strengths and weaknesses as revealed by an appraisal of readiness.[37]

Studies indicated that early symbol learning is selective and it cannot be prescribed for all children. Desirable symbolic learning should be a program that neither frustrates nor bores.[38] Durkin stated: "stimulate the most able child without undermining the least able in the group."

Bender stated that the body image is a Gestalt

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[37]Mary Austin and Morrison Coleman, The First R, (New York: Macmillan, 1963), pp. 219.

[38]Delores Durkin, "Reading Instruction and the Five-Year Old Child," in J. Allen Figurel (Ed.) Challenge and Experiement in Reading, (New York: Scholastic Magazine, 1963), pp. 23-27.

(comprehensive pattern or picture) determined by laws of growth and development.[39] The maturational level of a child's human-figure drawing and school achievement are significantly related as has been demonstrated by Coleman.[40] Koppitz found that a child's score on his human-figure drawing at the beginning of first grade was predictive of his reading level at the end of the year.[41]

Sex and Readiness for Learning

There are many people who think girls are ready to learn at a much earlier chronological age than boys. McCarthy observed that among American white children, girls characteristically are superior to boys in nearly all aspects of language at the beginning of the first grade.[42] A few years later, Anastasi reported that differences favoring females were found in almost every aspect of language development and that this finding was remarkably consistent from study

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[39]Lauretta Bender, "The Goodenough Test (Drawing-a-man) and Chronic Encephalitis in Children," Quarterly Journal of Child Behavior, 3 (1951), pp. 449-459.

[40]J. M. Coleman, Ira Iscoe and Marvin Brodsky, "The Draw-a-Man Test as a Predictor of School Readiness and as an Index of Emotional and Physical Maturity," Pediatrics, 24 (1959), pp. 275-281.

[41]Elizabeth M. Koppitz, The Bender Gestalt Test for Young Children, (New York: Grune and Stratton, 1964), pp. 1-47.

[42]D. McCarthy, "Language Development in Children," in L. Carmichael (Ed.), Manual of Child Psychology (2nd Ed.), (New York: Wiley, 1954), pp. 171-175.

to study.[43] A review of research by Maccoby made the following conclusion. "Girls are generally younger than boys when they begin first speech, development of articulation and verbal fluency."[44]

Dykstra and Tinney utilized several representative measures of readiness with a sample that included 1,659 boys and 1,624 girls from school systems in the states of Pennsylvania, Michigan, New York, and New Jersey. Their study was designed to yield additional information concerning sex differences in first and second-grade achievement, as well as in readiness for reading. Dykstra and Tinney found girls were significantly superior in intelligence, auditory discrimination, letter knowledge, learning rate, visual discrimination, and the ability to follow directions given orally.[45] They concluded that the pattern of female superiority in readiness was evident.

There are several studies that tend to contradict female superiority over male readiness. Strickland in her survey of language of elementary school children, reported no consistent

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[43]Anne Anastasi, Differential Psychology, (New York: Macmillan, 1958), pp. 327-345.

[44]Eleanor E. Maccoby, The Development of Sex Differences, (Stanford: Stanford University Press, 1966), pp. 67-132.

[45]Robert Dykstra and Ronald Tinney, "Sex Differences in Reading Readiness First-Grade Achievement and Second-Grade Achievement," Reading and Realism, 13, Part I. Proceedings of the Thirteenth Annual Convention, International Reading Association, (Newark, Delaware; 1971), pp. 623-628.

sex differences.[46] Loban found that although low language ability girls had a greater repertoire of syntax than low language ability boys, the reverse was true for boys and girls rated as possessing high language ability.[47] A 1967 report by O'Donnell, Griffin, and Norris indicated that numerous differences were found in syntactic structures and functions in the language of kindergarten and elementary school boys and girls.[48] In speech, however, no consistent pattern was noted. In most cases, differences which did exist favored boys. In light of this recent evidence, the theory of female linguistic superiority in early school age language development is being challenged.

Psychological Variables Related to Student Readiness

The student's self concept and educational achievement are very closely related. One of the most important motivational factors influencing the learning performance of children is the feelings of being successful. This has been

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[46]Ruth G. Strickland, "The Language of Elementary School Children: Its Relationship to the Language of Reading Textbooks and the Quality of Reading of Selected Children," Bulletin of the School of Education, (Indianapolis: Indiana University Press) 38, No. 4 (July, 1963), pp. 1-28.

[47]Walter D. Loban, The Language of Elementary School Children, (Champaign: National Council of Teachers of English, 1963), pp. 65-85.

[48]Rob C. O'Donnell, William C. Griffin and Raymond C. Norris, Syntax of Kindergarten and Elementary School Children: A Transformational Analysis, (Champaign: National Council of Teachers of English, 1967), pp. 92-107.

supported by Bruck[49], Brookover[50], Chickering[51], Fink[52]. This was especially true as it related to readiness and reading.

Children come to school with a wide range of self concepts. Some are confident, well-poised and sure of their ability to succeed. Others are lacking in self confidence, shy and immature.

According to Sornson, children who become retarded readers in the primary grades develop feelings of insecurity.[53] As a result of this insecurity, they manifested a less than satisfactory form of personal and social adjustment.

Sociological Variables and Student Readiness

Some of the learning problems experienced by the

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[49]Max Bruck, "A Study of Age Differences and Sex Differences in the Relationship Between Self-Concept and Grade-Point Average," (Unpublished Ph.D. dissertation, Michigan State University, 1957), (Microfilmed).

[50]W. B. Brookover, Ann Paterson and Shailer Thomas, "Self Concept of Ability and School Achievement," (East Lansing: Office of Research and Publications, College of Education, Michigan State University, 1962), pp. 1-29.

[51]Arthur W. Chickering, "Self Concept, Ideal Self Concept and Achievement," (Unpublished Ph.D. dissertation, Columbia University, 1958), (Microfilmed).

[52]M. B. Fink, "Self Concept as it Relates to Academic Under Achievement," California Journal of Educational Research, 13 (March, 1962), pp. 57-62.

[53]H. H. Sornson, "A Longitudinal Study of the Relationship Between Various Child Behavior Ratings and Success in Reading," (Unpublished Ph.D., University of Minnesota, Minneapolis, 1950), pp. 42-56.

disadvantaged stem from their backgrounds. Some of the deterrents in learning to read which are normally found among the disadvantaged are the following: Negative self-concept, lack of motivation to learn and lack of literature in the home.

The child from a lower socioeconomic home rarely encounters paper and pencils, newspapers, magazines or books before he arrives at school. He is certainly at a disadvantage since the printed page is the mainstay of teachers, schools and the entire educational process.

Since 1960 the federal government has tried to help the disadvantaged student through education. This help has been primarily in the form of financial aid to schools with a high concentration of students from low income families. Most of these children are Black, Puerto Rican, Mexican, mountain white and Indian.[54] Webster believed that certain sociological conditions tend to have a negative effect on the learning patterns of most disadvantaged students. Some of these characteristics would be as follows: (1) Concern for the Here and Now; The adults are concerned for the immediate and they have little time to plan for the future, thus their children take on this attitude. (2) Concrete and Functional Versus the Abstract; Students from Disadvantaged environments tend to possess cognitive styles which require extensive use

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[54]Staten W. Webster (ed.), The Disadvantaged Learner: Knowing, Understanding, Educating, (San Francisco, Calif.: Chandler, 1966), p. 477.

of concrete examples in perception and in learning. (3) Difficulties in Seeing Relationships; The child socialized in an impoverished environment are lacking in experiences which require classifying, relating, and intergrating knowledge. (4) Active Learning Versus Contemplative Learning; This factor might explain the growing alienation of the disadvantaged student from the school and its content. Socially disadvantaged persons tend to be more physical and expressive in their personal styles; learning can best be accomplished when the learning process involves physical activity.

The New York State Education Department Survey revealed that one major characteristic of the disadvantaged child is his inadequate language preparation. Language unpreparedness for school is usually found in the child who has extremely limited language resources to use as aids in conceptualizing his world. The child is usually characterized by the following:

> (1) a lack of vocal stimulation during infancy, (2) few experiences in conversation with more verbally mature adults in his early years, (3) severally limited opportunities to develop mature cognitive behavior, (4) a greater deficit in the auditory-vocal modality than in the visual-motor areas, and (5) a lack of quantity and quality of verbal expression.[55]

Conclusions Dervied from the Literature

The various studies cited in the review of the literature

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[55]New York State Education Department, Bureau of School and Cultural Research, The Education of Disadvantaged Children: A Survey of the Literature, (Albany, New York, 1967), p. 170.

have indicated some general conclusions which can be drawn. An attempt has been made to show that students from different socioeconomic status levels and different sexes usually perform differently on objective measures of academic readiness simply because of the differences in their ways of perceiving the testing materials. Based on the premise of different performances for students from different socioeconomic status levels, it can be presupposed that students who are accustomed to looking at the printed page would not derive as much benefit from a "natural" presentation of the test materials through a three-dimensional Mock-Up of the test items as those students who are not accustomed to looking at the printed page but are more familiar with experiencing the world in a three-dimensional way. Applied to the research setting, it could be hypothesized that the upper and middle socioeconomic status students would not derive as much benefit (increase in readiness test performance) from a three-dimensional Mock-Up presentation of readiness test materials as students from the lower socioeconomic status level.

The basic assumptions which were derived from the theoretical framework of the literature were as follows: (1) There will be less mean difference between raw scores from a paper-pencil test and the raw scores from a three-dimensional Mock-Up of the test for those students who are more accustomed to seeing the test materials presented in both formats. For the purposes of this study, these students were those from the upper and middle socioeconomic status

levels. (2) There will be more relationship between raw scores from paper-pencil tests and raw scores from a three-dimensional Mock-Up presentation of the same test for those students who are more accustomed to seeing the test materials presented in both formats (the upper and middle socioeconomic status students) than the relationship between the paper-pencil test scores and the three-dimensional Mock-Up scores of students who are less accustomed to seeing the test materials presented in both formats (the lower socioeconomic status students).

In essence, it may be hypothesized that the lower socioeconomic status students will gain more from a three-dimensional Mock-Up presentation of readiness test materials than students from the upper and middle socioeconomic status levels simply because the lower SES students are more accustomed to perceiving the materials presented on the readiness test in three-dimensional format. For this reason, it is anticipated that the lower SES students will not perform well on the paper-pencil test, but will show considerable improvement when the test materials are presented in three-dimensional Mock-Up format.

CHAPTER III

METHODS AND PROCEDURES

In the present study first-grade students from the Midwest City Elementary Schools were classified into one of three socioeconomic status (SES) groups and samples of thirty boys (N=30) and thirty (N=30) girls were randomly drawn from each of the three SES groups. Trained test administrators and proctors administered standardized tests to the selected participants to determine their scores that are predictive of success in reading. Test materials were alternately presented to the various groups in two different ways; (1) the Metropolitan Readiness Test (Form-A) was presented as a paper-pencil test and (2) test items contained on the Metropolitan Readiness Test (Form-A) were presented in the form of three-dimensional Mock-Ups. The data collected from the six subtests and total raw scores at each administration of the readiness test were used to test the thirty (30) hypotheses (Figure 1).

The methods and procedures used in the study were classified into the following three phases: (1) Pre-Experimental Procedures, (2) Experimental Procedures and (3) Data-Analysis Procedures.

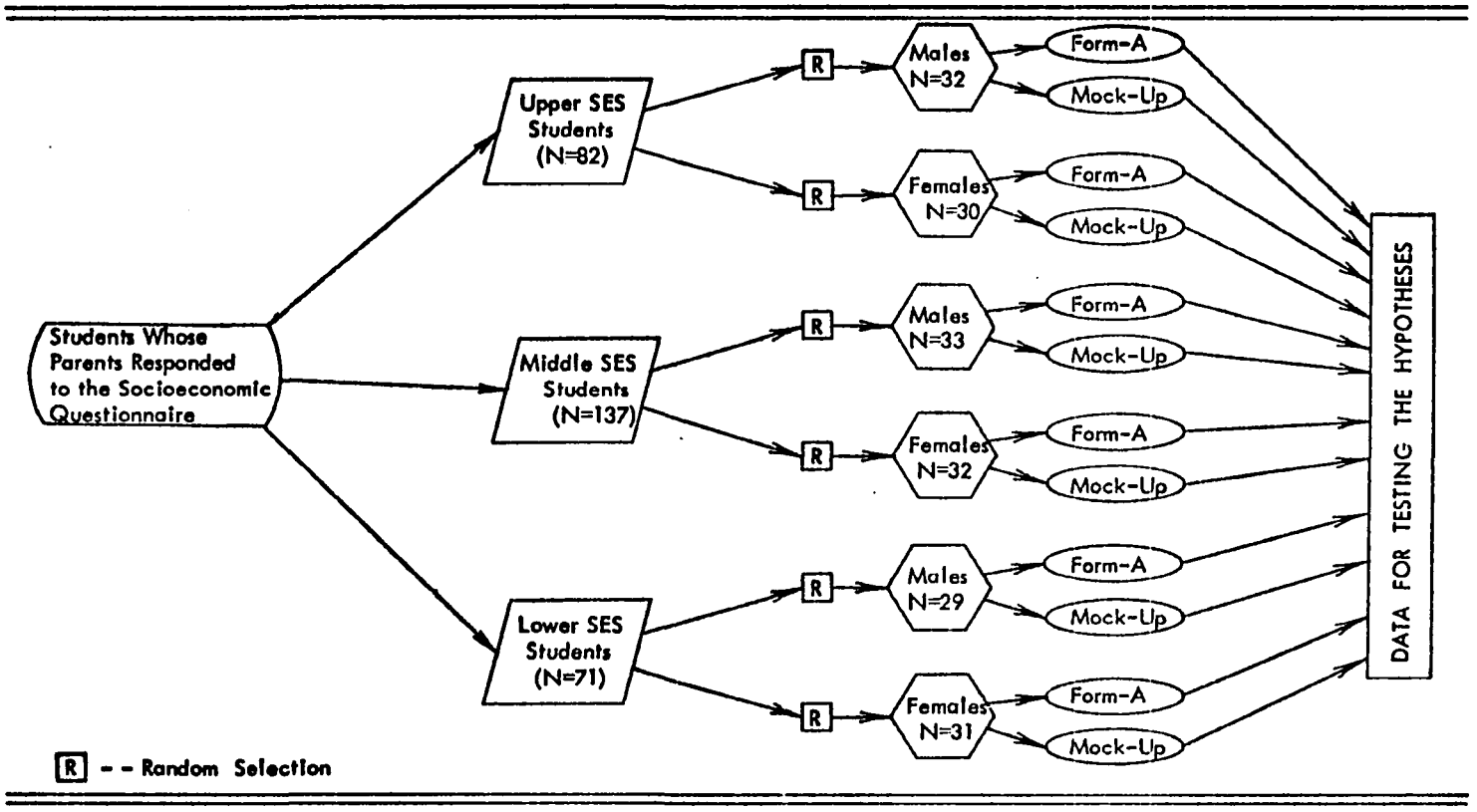

Fig. 2.--PARADIGM OF SAMPLING DESIGN

Pre-Experimental Procedures

The pre-experimental procedures consisted of all those tasks which the researcher had to complete before the data collection began. The more important of these tasks are described in detail in the following sections.

The research design chosen for the present experiment was a multiple-sample true experimental design preceded by random sampling participants from three finite populations. A paradigm of this research design is presented in Figure 1.

Selection and Development of Measuring Instruments

The first step of the pre-experimental procedures was the selection and development of the survey and data collection instruments. This involved two instruments--one for determining the socioeconomic status (SES) of the study participants and one instrument for determining their readiness scores. The Mock-Up was a derivation or simulation of the readiness instrument.

The instrument used to determine the participants' socioeconomic status was the Questionnaire By Which Socioeconomic Information Was Secured From Parents prepared by Eells and others. This instrument uses the following criteria to establish the socioeconomic status level: (1) Occupation, (2) Education (3) House type and (4) Dwelling area. The questionnaire in Appendix A was used to collect information concerning the occupation and educational level of the first-grade students' parents. Personal observations of the size

and physical condition of each student's home and the general area of each home's location in the community.

The instrument chosen to determine the participants' readiness scores was the Metropolitan Readiness Test (Form-A). This test yields measures on six subtests and a total raw score. The six subtests are as follows: (1) Word Meaning, (2) Listening, (3) Matching, (4) Alphabet, (5) Numbers and (6) Copying. The test-retest reliability of the Metropolitan Readiness Test has been determined as ranging from .78 to .91 while the content validity has been reported as ranging from .47 to .64.[1] These validity and reliability indices are considered to be sufficient.

The most difficult and time consuming aspect of the pre-experimental procedures was the development of the three-dimensional Mock-Ups of the readiness test materials. Mock-Ups were made of the readiness test materials by placing small plastic and plexiglas figures, letters, numbers, and symbols on a plexiglas base. Mock-Up panels were prepared simulating each of the fourteen pages contained in the Metropolitan Readiness Test (Form-A). Five sets of panels (14 panels per set) were developed as an attempt to shorten the amount of time needed to test all students participating in the study and avoid any confounding effects of subject maturation.

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[1]Oscar K. Buros, (editor) Seventh Mental Measurements Yearbook, (Highland Park, N. J.: Gryphon Press, 1972), pp. 161-169.

Orientation and Training of Test Administrators

Five qualified test administrators assisted in the collection of data from the participants chosen for the study. Two workshop sessions were held for the test administrators in which they were taught the proper procedures for presenting the Mock-Up panels and given the opportunity to practice the administration and scoring of test materials.

Selection of Subjects

The second major task of the pre-experimental procedures was the selection of the students who would take part in the experiment. This involved the determination of a population of first graders for each of the three SES levels and the random selection of male and female samples from each of these populations.

Establishing the SES level of each of the first-grade students in the Midwest City School System began by having their parents complete the questionnaire shown in Appendix A, Questionnaire By Which Socioeconomic Information Was Secured From Parents. Five-hundred twenty seven (N=527) first-grade parents responded to the questionnaire. The size and condition and residential location of the homes of those responding were determined.

The instrument developed by Eells and others is designed to establish socioeconomic status by the following criteria: (1) Occupation, (2) Education (3) House type and (4) Dwelling

area of the home.[2] The information needed to rate the first two criteria was taken from the questionnaire. Personal observation of the size and condition of the dwellings were used to determine house type. Ratings for the dwelling area were determined by the quality of the homes in each section of the city. Each of the four characteristics was rated on a seven-point scale which range from "1" (very high status value) to "7" (very low status value). The ratings made on the four scales were then summed to arrive at a single numerical index. This index was an indication of the student's SES level. A total raw score within the 4-12 range was used to designate the upper socioeconomic status children. A total raw score within the 13-20 range was used to designate the middle socioeconomic status children. Those with a total raw score within the 21-28 range were classified as lower socioeconomic status children. This method of determining SES levels is a simplified version of the methods described by Warner, Meeker, and Eells.[3] Using the procedures described, populations were established for the three SES levels as follows: (1) upper socioeconomic status--N=82, (2) middle socioeconomic status--N=127, and (3) lower socioeconomic status--N=71). It should be noted that no attempt was

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[2]Kenneth Eells et al., Intelligence and Cultural Differences (Chicago: The University of Chicago Press, 1951), p. 363.

[3]Lloyd W. Warner, Marcia Meeker and Kenneth Eells, Social Class in America, (Chicago: Science Research Associates, 1949), pp. 121-175.

made to check the size, condition, and residential location of all 527 respondents' homes. These criteria were checked for randomly chosen respondents until three SES populations had been established which were large enough to yield samples of thirty boys and thirty girls each and extra subjects available, if needed (Figure 2).

Experimental Procedures

The experimental procedures consisted of the data collected from the various groups of boys and girls from each of the three socioeconomic status levels. The collection of the data posed several problems such as the following: (1) a large number of students to be tested (at least 180), (2) a short period of time to complete the testing (school officials had agreed upon a ten-day time frame), (3) subjects were attending thirteen different school sites, (4) recency-primacy practice effects had to be controlled and (5) the effects of mean differences among test administrators had to be controlled.

The test administrators completed the data collection procedures only ten days after they had begun. During that time the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the Form-A test items were administered to 197 first-grade students from the thirteen elementary schools. The number of students chosen from each SES level at each school site is shown in Table 1.

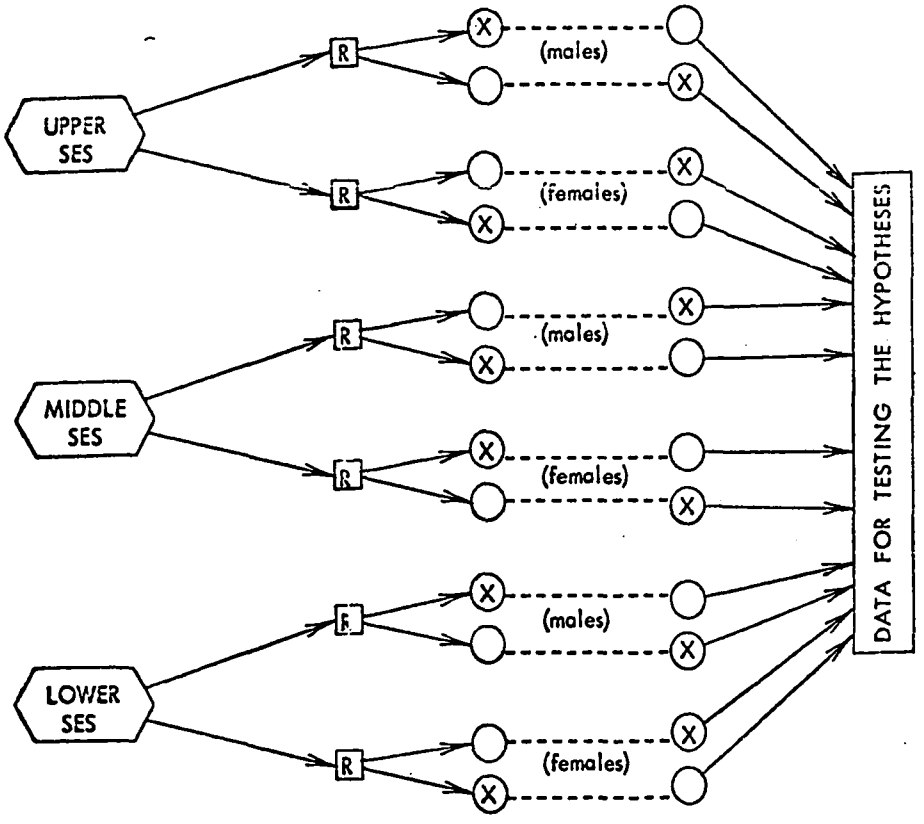

Fig. 2. -- PARADIGM OF RESEARCH DESIGN

TABLE 1

THE NUMBER OF STUDENTS CHOSEN FROM EACH OF THE ELEMENTARY SCHOOLS

School Number	Number of Students Chosen From Each School			Total Number Chosen
	Upper SES	Middle SES	Lower SES	
1	0	2	23	25
2	15	1	0	16
3	1	5	9	15
4	3	6	0	9
5	0	6	6	12
6	7	9	3	19
7	6	0	0	6
8	2	7	10	19
9	5	8	4	17
10	0	3	1	4
11	12	5	2	19
12	13	11	1	25
13	3	5	3	11
TOTALS	67	68	62	197

Controlling for Differences Among Test Administrators

Every attempt was made to control for any possible differences that might have existed among the variations in their procedures of administering the test. Such differences in ability would cause significant mean differences in the readiness test raw scores of the students being tested. Test administrator differences were controlled in the following ways: (1) only qualified test administrators were selected for collecting data, (2) group training sessions were held for the test administrators, (3) standardized sets of directions were used in administering the test materials, (4) students to be tested were randomly assigned to the test administrators and (5) the test administrators had no knowledge of the students' SES levels prior to the administration of the testing materials. These five methods of controlling for test administrator differences proved to be effective, and the effects of any such differences on students' raw scores were considered to be minimal.

Controlling for Practice Effects

In collecting the Form-A and Mock-Up test data, it was also necessary to control for practice effects. It is entirely possible that subjects who have been administered Form-A or the Mock-Up version of the Metropolitan Readiness Test on a pretest basis could perform well on the alternate version when it is administered as a posttest because of the knowledge gained from the pretesting. This is commonly known

as a "practice effect" or a "recency-primacy" effect. It should be noted, however, that any possible mean differences in the students' raw scores arising from such practice effects were controlled by administering the Form-A and Mock-Up materials on an alternating basis (Figure 1).

Although the data collection procedures posed several problems, the Form-A and Mock-Up readiness test data were collected from the specified number of students from each of the three socioeconomic levels (Table 2).

Data Analysis Procedures

The data analysis procedures consisted of the calculation of the statistical tests and the testing of the hypotheses which had been stated in the first chapter. Data analysis began by grouping the students' responses according to sex by socioeconomic level. This procedure yielded two sets of raw scores (Form-A subtest and total raw scores and Mock-Up subtest and total raw scores) for each sex group at each SES level. This constituted a total of twelve sets of data. However, a third set of data was also generated for each subgroup when the Form-A raw scores were subtracted from the Mock-Up raw scores yielding a mean difference (gain or loss score) measure for each student. The data analysis consisted of computing the descriptive statistics on each set of data such as the mean ($\overline{X}$), standard deviation (S) and variance (S^2).

Analysis of the data when testing the hypotheses required

TABLE 2

A COMPARISON OF THE PROPOSED NUMBERS AND ACTUAL NUMBERS INCLUDED IN EACH SUBSAMPLE GROUP

SOCIOECONOMIC STATUS	SEX: MALES (Form-A / Mock-Up)	SEX: FEMALES (Form-A / Mock-Up)	TOTALS
UPPER	N=30* / N=32**	N=30* / N=30**	N=60* / N=62**
MIDDLE	N=30* / N=33**	N=30* / N=32**	N=60* / N=65**
LOWER	N=30* / N=29**	N=30* / N=31**	N=60* / N=60**
TOTALS . . .	N=90* / N=94**	N=90* / N=93**	N=180* / N=187**

*Number of students proposed for the sample group prior to the data collection procedures

**Number of students actually included in the data collection procedures for the sample group

the use of the following statistical tests: (1) the Student's *t* test both for correlated data and independent data, (2) the Pearson's Product-Moment Correlation Coefficient for determining the relationships among the Form-A and Mock-Up raw scores of the various groups, and (3) the *z* test for comparing the Form-A/Mock-Up correlation coefficients of the various SES groups whenever inter-group comparisons were being made. All sub-hypotheses of Hypothesis Ho_1 were tested with a *t* test for correlated data except sub-hypotheses Ho_1j, Ho_1k, Ho_1l. These three sub-hypotheses were tested by performing a Student's *t* test for two independent samples between the Form-A/Mock-Up gain scores computed for each of the SES groups being compared.

All sub-hypotheses of Hypothesis Ho_2 were tested with a Pearson's Product-Moment Correlation coefficient ("r") except sub-hypotheses Ho_2j, Ho_2k, and Ho_2l. These three sub-hypotheses were tested by performing a *Z* test for two independent correlations between the Form-A/Mock-Up correlation coefficients computed for the two SES groups being compared when inter-group comparisons were being made.

The results derived from these data analysis procedures are presented in Chapter IV along with several ancillary findings which further explain the outcome of the experiment.

CHAPTER IV

RESULTS OF DATA ANALYSIS

This chapter contains the results derived from the statistical calculations made in testing the hypotheses. A Student's *t* test, a *Z* test, and a Pearson's product-moment correlation were used to test thirty null hypotheses which had been stated before the data were collected.

Hypothesis Ho_1

Hypothesis Ho_1 was concerned with the differences between the Form-A and Mock-Up scores. However, there was an exception to these comparisons. This exception occurred when comparisons were being made among the three socioeconomic status groups. For these treatments the gain scores (difference between the Form-A and the Mock-Up scores) were computed for each group and used as raw scores for making the desired comparisons.

The first general hypothesis tested in the study was stated in the null form as follows:

Ho_1 There are no statistically significant differences between the six subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the Metropolitan Readiness Test (Form-A)

among three socioeconomic status (SES) groups by sex.

The first general hypothesis was reduced to fifteen specific sub-hypotheses to facilitate its testing. The specific null hypothesis tested in each case is stated, and the statistical results are presented in an accompanying table.

Ho_1a There are no statistically significant mean differences between the upper socioeconomic status males' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The results of the statistical analysis (Table 3) indicated that significant mean differences existed between the Form-A and Mock-Up raw scores of the upper socioeconomic status (SES) males. These students had Mock-Up raw scores which were significantly higher than their Form-A raw scores in Word Meaning, Numbers, Copying, and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However, Mock-Up raw scores were significantly lower than Form-A raw scores on the subtest of Listening; therefore, the hypothesis related to Listening was rejected. There were no significant mean differences between Mock-Up and Form-A scores on the subtests of Matching and Alphabet; therefore, the hypotheses related to these two subtests were accepted.

Ho_1b There are no statistically significant mean differences between the upper socioeconomic status females' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The results of the statistical analysis (Table 3)

TABLE 3

A COMPARISON OF THE MEAN DIFFERENCES BETWEEN FORM-A AND MOCK-UP RAW SCORES OBTAINED BY UPPER SOCIOECONOMIC STATUS STUDENTS ON THE SIX SUBTESTS AND TOTAL OF THE METROPOLITAN READINESS TEST

The Six Sub-Areas of the Metropolitan Readiness Test (MRT)	MALES (N=32)					FEMALES (N=30)				
	Form-A Scores		Mock-Up Scores			Form-A Scores		Mock-Up Scores		
	Mean	Standard Deviation	Mean	Standard Deviation	t-Value	Mean	Standard Deviation	Mean	Standard Deviation	t-Value
1. Word Meaning	9.88	2.39	11.09	2.22	4.278*	9.70	2.05	10.43	2.53	2.505*
2. Listening	11.63	2.08	10.34	2.30	-2.272*	11.17	2.14	10.83	2.18	-0.920
3. Matching	9.97	2.60	10.28	1.97	0.731	10.10	2.47	10.70	2.25	1.306
4. Alphabet	13.09	3.56	12.88	3.09	-0.584	14.23	2.81	14.57	3.42	0.755
5. Numbers	13.91	4.71	15.41	4.77	2.516*	16.30	3.78	17.20	3.24	1.902
6. Copying	6.53	4.39	9.63	2.20	4.621*	6.73	3.29	10.43	3.15	6.635*
TOTAL SCORE	64.41	13.92	72.00	11.84	5.596*	69.17	10.35	75.03	9.87	3.324*

*Significant beyond the .05 level

indicated that significant mean differences existed between the Form-A and Mock-Up raw scores of the upper socioeconomic status (SES) females. These students had Mock-Up raw scores which were significantly higher than their Form-A raw scores in Word Meaning, Copying and Total raw scores, therefore, hypotheses related to these subtests were rejected. There was no significant mean differences between Mock-Up and Form-A raw scores on the subtests of Listening, Matching, Alphabet and Numbers; therefore, the hypotheses related to these four subtests were accepted.

Ho_1c There are no statistically significant mean differences between the middle socioeconomic status males' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The results of the statistical analysis (Table 4) indicated that significant mean differences existed between the Form-A and Mock-Up raw scores of the middle socioeconomic status (SES) males. These students had Mock-Up raw scores which were significantly higher than their Form-A raw scores on the subtests of Word Meaning, Alphabet, Numbers, Copying and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However, there were no significant mean differences between Mock-Up and Form-A raw scores on the subtests of Listening and Matching; therefore, the hypotheses related to these two subtests were accepted.

Ho_1d There are no statistically significant mean differences between the middle socioeconomic status females' subtest and total raw scores on the Metropolitan Readiness Test (Form-A)

TABLE 4

A COMPARISON OF THE MEAN DIFFERENCES BETWEEN FORM-A AND MOCK-UP RAW SCORES OBTAINED BY MIDDLE SOCIOECONOMIC STATUS STUDENTS ON THE SIX SUBTESTS AND TOTAL OF THE METROPOLITAN READINESS TEST

The Six Sub-Areas of the Metropolitan Readiness Test (MRT)	MALES (N=33)					FEMALES (N=32)				
	Form-A Scores		Mock-Up Scores			Form-A Scores		Mock-Up Scores		
	Mean	Standard Deviation	Mean	Standard Deviation	t-Value	Mean	Standard Deviation	Mean	Standard Deviation	t-Value
1. Word Meaning	10.36	2.33	11.46	2.02	3.008*	10.22	2.21	10.44	2.46	0.609
2. Listening	10.79	2.21	10.55	2.18	-0.498	11.23	2.52	11.09	2.56	-0.362
3. Matching	9.91	3.15	10.46	1.79	1.039	11.13	2.46	10.59	2.56	-1.271
4. Alphabet	14.46	2.36	15.52	0.97	2.477*	14.91	1.45	15.06	1.59	0.643
5. Numbers	15.00	4.53	17.42	3.24	3.315*	15.41	4.41	17.31	3.72	2.971*
6. Copying	6.88	3.61	10.64	2.90	6.322*	7.13	3.58	10.50	3.20	6.732*
TOTAL SCORE	69.12	12.13	76.03	7.87	3.894*	69.97	10.57	74.91	11.62	3.547*

*Significant beyond the .05 level

and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The statistical results shown in Table 4 indicated that significant mean differences existed between the Form-A and Mock-Up raw scores of the middle socioeconomic status (SES) females. These students had Mock-Up raw scores which were significantly higher than their Form-A raw scores in Numbers, Copying, and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However, there were no significant mean differences between Mock-Up and Form-A raw scores on the subtests of Word Meaning, Listening, Matching, and Alphabet; therefore, the hypotheses related to these subtests were accepted.

Ho_1e There are no statistically significant mean differences between the lower socioeconomic status males' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The results of the statistical analysis (Table 5) indicated that significant mean differences existed between the Form-A and Mock-Up raw scores of the lower socioeconomic status (SES) males. These students had Mock-Up raw scores which were significantly higher than their Form-A raw scores in Matching, Alphabet, Numbers, Copying, and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However, there were no significant mean differences between Mock-Up and Form-A raw scores on the subtests of Word Meaning and Listening; therefore, the hypotheses related to these two subtests were accepted.

TABLE 5.

A COMPARISON OF THE MEAN DIFFERENCES BETWEEN FORM-A AND MOCK-UP RAW SCORES OBTAINED BY LOWER SOCIOECONOMIC STATUS STUDENTS ON THE SIX SUBTESTS AND TOTAL OF THE METROPOLITAN READINESS TEST

The Six Sub-Areas of the Metropolitan Readiness Test (MRT)	MALES (N=29)					FEMALES (N=31)				
	Form-A Scores		Mock-Up Scores			Form-A Scores		Mock-Up Scores		
	Mean	Standard Deviation	Mean	Standard Deviation	t-Value	Mean	Standard Deviation	Mean	Standard Deviation	t-Value
1. Word Meaning	11.48	1.90	12.14	1.68	1.874	10.84	2.62	11.87	1.73	2.744*
2. Listening	10.79	2.41	11.17	2.41	0.662	11.10	2.21	11.58	2.39	1.126
3. Matching	10.17	3.13	11.31	1.69	2.293*	11.19	1.78	11.16	2.45	-0.069
4. Alphabet	14.48	2.21	15.79	1.24	2.844*	15.45	0.89	15.87	0.34	2.489*
5. Numbers	15.93	4.68	18.41	4.17	4.129*	17.39	2.72	18.77	3.06	3.207*
6. Copying	7.0	3.53	11.21	2.04	8.867*	7.52	3.19	10.84	2.75	5.801*
TOTAL SCORE	70.31	13.03	80.03	8.22	5.682*	73.52	8.96	80.10	8.94	4.869*

*Significant beyond the .05 level

Ho_1f There are no statistically significant mean differences between the lower socioeconomic status females' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The results of the statistical analysis (Table 5) indicated that significant mean differences existed between the Form-A and Mock-Up raw scores of the lower socioeconomic status (SES) females. These students had Mock-Up raw scores which were significantly higher than their Form-A raw scores in Word Meaning, Alphabet, Numbers, Copying, and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However, there were no significant mean differences between Mock-Up and Form-A raw scores on the subtests of Listening and Matching; therefore, the hypotheses related to these two subtests were accepted.

Ho_1g There are no statistically significant mean differences between the upper socioeconomic status students' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The results of the statistical analysis (Table 6) indicated that significant mean differences existed between the Form-A and Mock-Up raw scores of the upper socioeconomic status (SES) students. These students had Mock-Up raw scores which were significantly higher than their Form-A raw scores in Word Meaning, Alphabet, Numbers, Copying, and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However, Mock-Up raw scores were significantly

TABLE 6:

A COMPARISON OF THE MEAN DIFFERENCES BETWEEN FORM-A AND MOCK-UP RAW SCORES OBTAINED BY STUDENTS FROM THE THREE SOCIOECONOMIC STATUS LEVELS ON THE SIX SUBTESTS AND TOTAL OF THE METROPOLITAN READINESS TEST

	U P P E R (N=62)					M I D D L E (N=65)					L O W E R (N=60)				
The Six Sub-Areas of the Metropolitan Readiness Test (MRT)	Form-A Scores		Mock-Up Scores		t-Value	Form-A Scores		Mock-Up Scores		t-Value	Form-A Scores		Mock-Up Scores		t-Value
	Mean	Standard Deviation	Mean	Standard Deviation		Mean	Standard Deviation	Mean	Standard Deviation		Mean	Standard Deviation	Mean	Standard Deviation	
1. Word Meaning	9.66	2.48	10.69	2.41	4.617*	10.29	2.26	10.95	2.29	2.476*	11.15	2.31	12.00	1.70	3.314*
2. Listening	11.40	2.10	10.58	2.24	-2.485*	11.00	2.36	10.82	2.37	-0.688	10.95	2.30	11.40	2.40	1.270
3. Matching	10.03	2.52	10.48	2.10	1.510	10.51	2.87	10.52	2.19	0.000	10.67	2.52	11.23	2.10	1.692
4. Alphabet	13.65	3.25	14.60	2.76	3.208*	14.68	1.96	15.29	1.32	1.181	14.98	1.72	15.83	0.89	3.474*
5. Numbers	15.08	4.42	16.27	4.17	3.469*	15.43	4.06	17.37	3.46	2.719*	16.70	3.84	18.60	3.61	5.144*
6. Copying	6.63	3.87	10.02	3.18	7.989*	7.00	3.57	10.52	2.95	9.639*	7.27	3.34	11.03	2.44	9.887*
TOTAL SCORE	66.71	12.39	73.47	10.95	8.204*	69.54	11.31	75.48	9.83	5.198*	71.97	11.13	80.07	8.52	7.358*

*Significant beyond the .05 level

lower than Form-A raw scores on the subtest of Listening; therefore, the hypothesis related to Listening was rejected. There were no significant mean differences between Mock-Up and Form-A scores on the subtest of Matching; therefore the hypothesis related to Matching was accepted.

Ho_1h There are no statistically significant mean differences between middle socioeconomic status students' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The results of the statistical analysis (Table 6) indicated that significant mean differences existed between the Form-A and Mock-Up raw scores of the middle socioeconomic status (SES) students. These students had Mock-Up raw scores which were significantly higher than their Form-A raw scores in Word Meaning, Numbers, Copying, and Total raw scores; therefore, the hypothesis related to these subtests were rejected. However, there were no significant mean differences between Mock-Up and Form-A raw scores on the subtests of Listening, Matching and Alphabet; therefore, the hypotheses related to these subtests were accepted.

Ho_1i There are no statistically significant mean differences between the lower socioeconomic status students' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The results of the statistical analysis (Table 6) indicated that significant mean differences existed between the Form-A and Mock-Up raw scores of the lower socioeconomic

status (SES) students. These students had Mock-Up raw scores which were significantly higher than their Form-A raw scores in Word Meaning, Alphabet, Numbers, Copying, and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However, there were no significant mean differences between Mock-Up and Form-A raw scores on the subtests of Listening and Matching; therefore, the hypotheses related to these two subtests were accepted.

Ho_1j There are no statistically significant mean differences between the Form-A/Mock-Up gain scores computed for the upper socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test and the Form-A/Mock-Up gain scores computed for the middle socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test.

The results of the statistical analysis (Table 7) indicated that there were no significant mean differences between the Form-A/Mock-Up gain scores computed for the students from the upper socioeconomic status and the middle socioeconomic status. Therefore, the hypotheses relating to these differences were accepted.

Ho_1k There are no statistically significant mean differences between the Form-A/Mock-Up gain scores computed for the upper socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test and the Form-A/Mock-Up gain scores computed for the lower socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test.

TABLE 7.

A COMPARISON OF THE MEAN DIFFERENCES BETWEEN FORM-A/MOCK-UP GAIN SCORES OBTAINED BY STUDENTS FROM THE THREE SOCIOECONOMIC STATUS LEVELS ON THE SIX SUBTESTS AND TOTAL OF THE METROPOLITAN READINESS TEST

	UPPER (N=62) vs. MIDDLE (N=65)					UPPER (N=62) vs. LOWER (N=60)					MIDDLE (N=65) vs. LOWER (N=60)				
The Six Sub-Areas of the Metropolitan Readiness Test (MRT)	UPPER SES Form-A/ Mock-Up Gain		MIDDLE SES Form-A/ Mock-Up Gain			UPPER SES Form-A/ Mock-Up Gain		LOWER SES Form-A/ Mock-Up Gain			MIDDLE SES Form-A/ Mock-Up Gain		LOWER SES Form-A/ Mock-Up Gain		
	Mean	Standard Deviation	Mean	Standard Deviation	t-Value	Mean	Standard Deviation	Mean	Standard Deviation	t-Value	Mean	Standard Deviation	Mean	Standard Deviation	t-Value
1. Word Meaning	1.03	2.45	0.66	2.28	-0.882	1.03	2.45	0.49	2.01	-1.335	0.66	2.28	0.49	2.01	-0.444
2. Listening	-0.82	2.17	-0.18	2.37	1.590	-0.82	2.17	0.45	2.35	3.099*	-0.18	2.37	0.45	2.35	1.491
3. Matching	0.45	2.31	0.01	2.53	-1.024	0.45	2.31	0.56	2.31	-0.263	0.01	2.53	0.56	2.31	1.271
4. Alphabet	0.95	3.01	0.61	1.64	-0.786	0.95	3.01	0.85	1.31	-0.240	0.61	1.64	0.85	1.31	0.909
5. Numbers	1.19	4.30	1.94	3.76	1.026	1.19	4.30	1.90	3.73	0.976	1.94	3.76	1.90	3.73	-0.060
6. Copying	3.39	3.53	3.52	3.26	0.216	3.39	3.53	3.76	2.89	0.635	3.52	3.26	3.76	2.89	0.436
TOTAL SCORE	6.76	11.67	5.94	10.57	-0.414	6.76	11.67	8.10	9.83	-0.687	5.94	10.57	8.10	9.83	-1.184

*Significant beyond the .05 level

The results of the statistical analysis (Table 7) indicated that the lower SES students made significantly greater Form-A/Mock-Up gains in Listening than the upper SES students. Therefore, the hypothesis related to this subtest was rejected. However, there were no significant mean differences between the two groups' Form-A/Mock-Up gain scores on the subtests of Word Meaning, Matching, Alphabet, Numbers, Copying and Total raw scores; therefore, the hypotheses related to these subtests were accepted.

Ho_1l There are no statistically significant mean differences between the Form-A/Mock-Up gain scores computed for the middle socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test and the Form-A/Mock-Up gain scores computed for the lower socioeconomic status students on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test.

The results of the statistical analysis (Table 7) indicated that there were no significant mean differences between the Form-A/Mock-Up gain scores computed for the students from the middle socioeconomic status and the Form-A/Mock-Up gain scores computed for the students from the lower socioeconomic status. Therefore, the hypotheses relating to these different subtests and Total raw scores were accepted.

Ho_1m There are no statistically significant mean differences between the total male populations' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The results of the statistical analysis (Table 8)

TABLE 8

A COMPARISON OF THE MEAN DIFFERENCES BETWEEN FORM-A AND MOCK-UP RAW SCORES OBTAINED BY THE MALES, FEMALES, AND TOTAL POPULATION OF STUDENTS ON THE SIX SUBTESTS AND TOTAL OF THE METROPOLITAN READINESS TEST

The Six Sub-Areas of the Metropolitan Readiness Test (MRT)	TOTAL MALES (N=94)					TOTAL FEMALES (N=93)					TOTAL STUDENTS (N=187)				
	Form-A Scores		Mock-Up Scores			Form-A Scores		Mock-Up Scores			Form-A Scores		Mock-Up Scores		
	Mean	Standard Deviation	Mean	Standard Deviation	t-Value	Mean	Standard Deviation	Mean	Standard Deviation	t-Value	Mean	Standard Deviation	Mean	Standard Deviation	t-Value
1. Word Meaning	10.54	2.30	11.54	2.02	5.131*	10.34	1.99	10.96	2.18	3.583*	10.45	2.16	11.25	2.11	5.585*
2. Listening	11.07	2.24	10.67	2.29	-1.303	11.16	2.28	11.17	2.38	0.048	11.12	2.25	10.92	2.35	-1.031
3. Matching	10.02	2.94	10.66	1.86	2.373*	10.82	2.29	10.82	2.42	0.000	10.42	2.65	10.74	2.15	1.745
4. Alphabet	14.15	2.44	15.30	1.54	5.591*	14.87	1.93	15.17	2.21	1.749	14.51	2.22	15.24	1.90	4.526*
5. Numbers	15.07	4.43	17.05	4.24	5.742*	16.37	3.77	17.77	3.40	4.273*	15.71	4.15	17.40	3.86	7.403*
6. Copying	6.80	3.84	10.47	2.83	10.935*	7.13	3.34	10.56	2.96	11.253*	6.97	3.59	10.51	2.89	15.685*
TOTAL SCORE	67.89	13.14	75.90	9.95	8.758*	70.90	10.06	76.68	10.40	7.760*	69.38	11.78	76.28	10.15	11.612*

*Significant beyond the .05 level

indicated that significant mean differences existed between the Form-A and Mock-Up raw scores of the total male population. These students had Mock-Up raw scores which were significantly higher than their Form-A raw scores in Word Meaning, Matching, Alphabet, Numbers, Copying and Total raw scores; therefore, the hypotheses related to these subtests and Total raw scores were rejected. However, there were no significant mean differences between the males' Form-A and Mock-Up raw scores on the subtest of Listening; therefore, the hypothesis related to this subtest was accepted.

Ho_1n There are no statistically significant mean differences between the total female populations' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The results of the statistical analysis (Table 8) indicated that significant mean differences existed between the Form-A and Mock-Up raw scores of the total female population. These students had Mock-Up raw scores which were significantly higher than their Form-A raw scores in Word Meaning, Numbers, Copying and Total raw scores; therefore, the hypotheses related to these subtests and Total raw scores were rejected. However, there were no significant mean differences between the females' Form-A and Mock-Up raw scores on the subtests of Listening, Matching, and Alphabet; therefore, the hypotheses related to these subtests were accepted.

Ho_1o There are no statistically significant mean differences between the total student populations' subtest and total raw

scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The results of the statistical analysis (Table 8) indicated that significant mean differences existed between the Form-A and Mock-Up raw scores of the total student population. The students had Mock-Up raw scores which were significantly higher than their Form-A raw scores in Word Meaning, Alphabet, Numbers, Copying, and Total raw scores; therefore, the hypotheses related to these subtests and Total raw scores were rejected. However, there were no significant mean differences between the students' Form-A and Mock-Up raw scores on the subtests of Listening and Matching; therefore, the hypotheses related to these subtests were accepted.

Summary of Results of Hypothesis Ho_1

The results presented in Tables 3 through 8 indicate that nearly all sex groups at each socioeconomic (SES) level performed better on the Mock-Up version of the Metropolitan Readiness Test material than on the paper-pencil (Form-A) version. However, the individual presentations of each subhypothesis makes a comprehensive picture of the overall results difficult. The t values computed for each comparison are presented collectively in Table 9 as a means of summarizing the results obtained in testing the fifteen subhypotheses of Hypothesis Ho_1.

The significant t values presented in Table 9 show definite patterns along both SES and sex dimensions. It was

TABLE 9

SUMMARY OF STATISTICAL RESULTS OBTAINED FROM TESTING THE FIFTEEN SUB-HYPOTHESES OF HYPOTHESIS NUMBER ONE

GROUPS	READINESS SUBTESTS AND CORRESPONDING t-VALUES						
	Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL
UPPER CLASS							
Males	4.278*	-2.272*	0.731	-0.584	2.516*	4.621*	5.596*
Females	2.505*	-0.920	1.306	0.755	1.902	6.635*	3.324*
MIDDLE CLASS							
Males	3.008*	-0.498	1.039	2.477*	3.315*	6.322*	3.894*
Females	0.609	-0.362	-1.271	0.643	2.971*	6.732*	3.547*
LOWER CLASS							
Males	1.874	0.662	2.293*	2.844*	4.129*	8.867*	5.682*
Females	2.744*	1.126	-0.069	2.489*	3.207*	5.801*	4.869*
Total Upper Class	4.617*	-2.485*	1.510	3.208*	3.469*	7.989*	8.204*
Total Middle Class	2.476*	-0.688	0.000	1.181	2.719*	9.639*	5.198*
Total Lower Class	3.314*	1.270	1.692	3.474*	5.144*	9.887*	7.358*
Total Males	5.131*	-1.303	2.373*	5.591*	5.742*	10.935*	8.758*
Total Females	3.583*	0.048	0.000	1.749	4.273*	11.253*	7.760*
Total Students	5.585*	-1.031	1.745	4.526*	7.403*	15.685*	11.612*
Upper vs. Middle	-0.882	1.590	-1.024	-0.786	1.026	0.216	-0.414
Upper vs. Lower	-1.335	3.099*	-0.263	-0.240	0.976	0.635	-0.687
Middle vs. Lower	-0.444	1.491	1.271	0.909	-0.060	0.436	-1.184

*Significant beyond the .05 level

obvious that differences between Form-A and Mock-Up scores were consistently large on some subtests, while other subtests showed a negative effect as a result of presenting the material in the form of three-dimensional Mock-Ups. The results may best be summarized by SES level, sex and total groups.

The facilitating/debilitating effects of the three-dimensional Mock-Up presentations on the various subtest scores of the three SES groups were as follows: (1) Word Meaning--Significantly positive (facilitating) effect for all three SES levels; (2) Listening--Negative (debilitating) effects for both the upper and middle SES groups, but positive effects for the lower SES group; (3) Matching--Positive effects for both, the upper and lower SES groups, but no effects upon the middle SES group's scores; (4) Alphabet--Significantly positive effects upon the scores of all three SES groups; (5) Numbers--Significantly positive effects upon the scores of all three groups; (6) Copying--Significantly positive effects upon the scores of all three groups.

The facilitating/debilitating effects of the three-dimensional Mock-Up presentations on the various subtest scores of the two sex groups were as follows: (1) Word Meaning--Significantly positive effects upon the scores of both groups; (2) Listening--Negative effects upon males' scores, but positive effects upon the females' scores; (3) Matching--Significantly positive effects upon the males' scores, but no effects upon the females' scores; (4) Alphabet--Positive

effects upon the scores of both groups; (5) Numbers--Significantly positive effects upon the scores of both groups; (6) Copying--Significantly positive effects upon the scores of both groups.

A summary of the comparisons made between the Form-A Total raw scores and the Mock-Up Total raw scores recorded for each SES group showed that the greatest improvement resulting from the Mock-Up presentations was experienced by the lower SES group (8.10 Total points increase); the upper SES group experienced the second highest increase (6.76 Total points); and the middle SES group experienced the least increase of all (5.77 Total points). It should be noted, however, that the amount of increase experienced by all three SES groups was significant. Also, the over-all increase experienced by the male participants (8.01 Total points) was higher than the increase experienced by the female participants (5.79 Total points). Both sex groups showed significant gains from the Form-A administration to the Mock-Up administration of the readiness test materials. These results indicate that the Mock-Up version of the Metropolitan Readiness Test has a facilitating effect upon the performance of all the students used in this study. However, the males in the upper and lower SES groups seemed to benefit the most of all the groups being tested. These results are further explored in testing the second general hypothesis, and the conclusions drawn from all findings are presented in more detail in the final chapter of the dissertation.

Hypothesis Ho_2

Hypothesis Ho_2 was concerned with the relationships (correlations) between the Form-A and Mock-Up scores recorded for each student participating in the study. The second general null hypothesis was stated as follows:

> Ho_2 There are no statistically significant correlations between the six subtest and total scores on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the Metropolitan Readiness Test (Form-A) among three socioeconomic status (SES) groups of first-grade students who had been further divided into groups of males and females at each socioeconomic status level.

The second general hypothesis was reduced to fifteen sub-hypotheses to facilitate its testing. The null proposition of each sub-hypothesis is stated in conjunction with the presentation of the statistical results.

> Ho_2a There are no statistically significant correlations between the upper socio-economic status males' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The results (Table 10) indicated there were significant relationships on five (5) subtests and total raw scores of the Metropolitan Readiness Test. Mock-Up raw scores which were significantly correlated with Form-A scores on the subtests of Word Meaning, Matching, Alphabet, Numbers, Copying and Total raw scores; therefore, the hypotheses related to these five subtests were rejected. However, there was no significant correlation between the Form-A and Mock-Up

TABLE 10

SUMMARY OF STATISTICAL RESULTS OBTAINED FROM TESTING THE FIFTEEN SUB-HYPOTHESES OF HYPOTHESIS NUMBER TWO

GROUPS	READINESS SUBTESTS AND CORRESPONDING CORRELATIONS ("r")						
	Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL
UPPER CLASS							
Males	.683*	-.006	.512*	.834*	.763*	.549*	.846*
Females	.777*	.561*	.435*	.703*	.738*	.551*	.839*
MIDDLE CLASS							
Males	.622*	.278	.419*	.222	.512*	.517*	.601*
Females	.646*	.652*	.571*	.651*	.641*	.678*	.728*
LOWER CLASS							
Males	.425*	.148	.495*	.011	.729*	.685*	.698*
Females	.621*	.487*	.398*	.089	.674*	.451*	.658*
Total Upper Class	.730*	.250*	.472*	.696*	.766*	.544*	.845*
Total Middle Class	.621*	.495*	.472*	.357*	.585*	.596*	.645*
Total Lower Class	.542*	.319*	.389*	.030	.703*	.533*	.657*
Total Males	.625*	.120	.462*	.569*	.704*	.558*	.738*
Total Females	.690*	.567*	.468*	.684*	.617*	.570*	.760*
Total Students	.570*	.348*	.451*	.431*	.698*	.562*	.735*

*Significant beyond the .05 level

raw scores on the subtest of Listening, and the hypothesis related to this subtest was accepted.

Ho_2b There are no statistically significant correlations between the upper socio-economic status females' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The statisical results presented in Table 10 indicated there were significant relationships between the upper SES females' Form-A and Mock-Up raw scores on six (6) subtest and total raw scores of the Metropolitan Readiness Test. Mock-Up raw scores which were significantly correlated with Form-A raw scores were from the subtests of Word Meaning, Listening, Matching, Alphabet, Numbers, Copying and Total raw scores; therefore, the hypotheses related to these subtests were rejected.

Ho_2c There are no statistically significant correlations between the middle socio-economic status males' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The statistical results presented in Table 10 indicated there were significant relationships between the middle SES males' Form-A and Mock-Up raw scores on four (4) subtest and total raw scores of the Metropolitan Readiness Test. Mock-Up raw scores which were significantly correlated with Form-A raw scores were from the subtests of Word Meaning, Matching, Numbers, Copying and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However,

there were no significant correlations between the Form-A and Mock-Up raw scores on the subtests of Listening and Alphabet, and the hypotheses related to these subtests were accepted.

Ho_2d There are no statistically significant correlations between the middle socioeconomic status females' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The statistical results presented in Table 10 indicated there were significant relationships between the middle SES females' Form-A and Mock-Up raw scores on six (6) subtest and total raw scores of the Metropolitan Readiness Test. Mock-Up raw scores which were significantly correlated with Form-A raw scores were from the subtests of Word Meaning, Listening, Matching, Alphabet, Numbers, Copying and Total raw scores; therefore, the hypotheses related to these subtests were rejected.

Ho_2e There are no statistically significant correlations between the lower socioeconomic status males' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The statistical results presented in Table 10 indicated there were significant relationships between the lower SES males' Form-A and Mock-Up raw scores on four (4) subtest and total raw scores of the Metropolitan Readiness Test. Mock-Up raw scores which were significantly correlated with Form-A raw scores were from the subtests of Word Meaning, Matching,

Numbers, Copying and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However, there were no significant correlations between the Form-A and Mock-Up raw scores on the subtests of Listening and Alphabet, and the hypotheses related to these subtests were accepted.

Ho_2f There are no statistically significant correlations between the lower socio-economic status females' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The statistical results presented in Table 10 indicated there were significant relationships between the lower SES females' Form-A and Mock-Up raw scores on five (5) subtest and total raw scores of the Metropolitan Readiness Test. Mock-Up raw scores which were significantly correlated with Form-A raw scores were from the subtests of Word Meaning, Listening, Matching, Numbers, Copying and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However, there was no significant correlation between the Form-A and Mock-Up raw scores on the subtest of Alphabet, and the hypothesis related to this subtest was accepted.

Ho_2g There are no statistically significant correlations between the upper socio-economic status students' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The statistical results presented in Table 10 indicated there were significant relationships between the upper SES

students' Form-A and Mock-Up raw scores on five (5) subtest and total raw scores of the Metropolitan Readiness Test. Mock-Up raw scores which were significantly correlated with Form-A raw scores were from the subtests of Word Meaning, Matching, Alphabet, Numbers, Copying and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However, there was no significant correlation between the Form-A and Mock-Up raw scores on the subtest of Listening, and the hypothesis related to this subtest was accepted.

Ho_2h There are no statistically significant correlations between the middle socio-economic status students' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The statistical results presented in Table 10 indicated there were significant relationships between the middle SES students' Form-A and Mock-Up raw scores on six (6) subtest and total raw scores of the Metropolitan Readiness Test. Mock-Up raw scores which were significantly correlated with Form-A raw scores were from the subtests of Word Meaning, Listening, Matching, Alphabet, Numbers, Copying and Total raw scores; therefore, the hypotheses related to these subtests were rejected.

Ho_2i There are no statistically significant correlations between the lower socio-economic status students' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The statistical results presented in Table 10 indicated

there were significant relationships between the lower SES students' Form-A and Mock-Up raw scores on four (4) subtest and total raw scores of the Metropolitan Readiness Test. Mock-Up raw scores which were significantly correlated with Form-A raw scores were from the subtests of Word Meaning, Matching, Numbers, Copying and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However, there were no significant correlations between the Form-A and Mock-Up raw scores on the subtests of Listening and Alphabet, and the hypotheses related to these subtests were accepted.

Ho_2j There are no statistically significant mean differences between the Form-A/Mock-Up correlations computed for the upper socioeconomic status students from their performance on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test AND the Form-A/Mock-Up correlations computed for the middle socioeconomic status students from their performance on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test.

The statistical results presented in Table 11 indicated that there were significant differences between the Form-A/Mock-Up correlations computed for the two groups. The upper SES correlations were significantly higher than those computed for the middle SES group on Alphabet and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However, there were no significant differences between the two groups' correlations computed for the subtests of Word Meaning, Listening, Matching, Numbers and Copying;

TABLE 11

A COMPARISON OF THE FORM-A/MOCK-UP CORRELATION COEFFICIENTS COMPUTED FOR STUDENTS FROM THE THREE SOCIOECONOMIC STATUS LEVELS ON THE SIX SUBTESTS AND TOTAL OF THE METROPOLITAN READINESS TEST

The Six Sub-Areas of the Metropolitan Readiness Test (MRT)	UPPER (N=62) vs. MIDDLE (N=65)					UPPER (N=62) vs. LOWER (N=60)					MIDDLE (N=65) vs. LOWER (N=60)				
	UPPER SES Correlations		MIDDLE SES Correlations			UPPER SES Correlations		LOWER SES Correlations			MIDDLE SES Correlations		LOWER SES Correlations		
	Correlation	Fishers Z	Correlation	Fishers Z	Z-Value	Correlation	Fishers Z	Correlation	Fishers Z	Z-Value	Correlation	Fishers Z	Correlation	Fishers Z	Z-Value
1. Word Meaning	.730	0.929	.621	-.727	-1.111	.730	0.929	.541	0.606	-1.739	.621	0.727	.541	0.606	-0.659
2. Listening	.250	0.255	.495	0.543	1.589	.250	0.255	.319	0.331	0.415	.495	0.543	.319	0.331	-1.155
3. Matching	.471	0.512	.472	0.513	0.011	.471	0.512	.389	0.572	-0.538	.472	0.513	.389	0.572	-0.556
4. Alphabet	.696	0.859	.357	0.373	-2.672*	.696	0.859	.030	0.030	-4.464*	.357	0.373	.030	0.030	-1.869
5. Numbers	.765	1.008	.585	0.670	-0.957	.765	1.008	.703	0.873	-0.156	.585	0.670	.703	0.873	1.106
6. Copying	.544	0.610	.596	0.734	0.423	.544	0.610	.533	0.594	-0.081	.596	0.734	.533	0.594	-0.501
TOTAL SCORE	.845	1.238	.645	0.767	-2.590*	.845	1.238	.657	0.788	-2.423*	.645	0.767	.657	0.788	0.114

*Significant beyond the .05 level

therefore, the hypotheses related to these subtests were accepted.

Ho_2k There are no statistically significant differences between the Form-A/Mock-Up correlations computed for the upper socioeconomic status students from their performance on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test AND the Form-A/Mock-Up correlations computed for the lower socioeconomic status students from their performance on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test.

The statistical results presented in Table 11 indicated that there were significant differences between the Form-A/Mock-Up correlations computed for the two groups. The upper SES students showed correlations which were significantly higher than those correlations computed for the lower SES students on the subtests of Alphabet and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However, there were no significant differences between the two groups' correlations computed for the subtests of Word Meaning, Listening, Matching, Numbers and Copying; therefore, the hypotheses related to these subtests were accepted.

Ho_2l There are no statistically significant differences between the Form-A/Mock-Up correlations computed for the middle socioeconomic status students from their performance on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test AND the Form-A/Mock-Up correlations computed for the lower socioeconomic status students from their performance on the Metropolitan Readiness Test (Form-A) and a three-dimensional Mock-Up of the test.

The statistical results presented in Table 11 indicated that there were no significant differences between the Form-A/Mock-Up correlations computed for the two groups; therefore, the hypotheses related to the subtests and Total raw scores were accepted.

Ho_2m There are no statistically significant correlations between the total male populations' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The statistical results presented in Table 12 indicated there were significant relationships between the total male populations' Form-A and Mock-Up raw scores on five (5) subtest and total raw scores of the Metropolitan Readiness Test. Mock-Up raw scores which were significantly correlated with Form-A raw scores were from the subtests of Word Meaning, Matching, Alphabet, Numbers, Copying and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However, there was no significant correlation between the Form-A and Mock-Up raw scores on the subtest of Listening, and the hypothesis related to this subtest was accepted.

Ho_2n There are no statistically significant correlations between the total female populations' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The statistical results presented in Table 12 indicated there were significant relationships between the total female

TABLE 12

A COMPARISON OF THE CORRELATIONS BETWEEN FORM-A AND MOCK-UP RAW SCORES OBTAINED BY THE MALES, FEMALES, AND TOTAL POPULATION OF STUDENTS ON THE SIX SUBTESTS AND TOTAL OF THE METROPOLITAN READINESS TEST

The Six Sub-Areas of the Metropolitan Readiness Test (MRT)	TOTAL MALES (N=94)					TOTAL FEMALES (N=93)					TOTAL STUDENTS (N=187)				
	Form-A Scores		Mock-Up Scores			Form-A Scores		Mock-Up Scores			Form-A Scores		Mock-Up Scores		
	Mean	Standard Deviation	Mean	Standard Deviation	Correlation Coefficient	Mean	Standard Deviation	Mean	Standard Deviation	Correlation Coefficient	Mean	Standard Deviation	Mean	Standard Deviation	Correlation Coefficient
1. Word Meaning	10.54	2.30	11.54	2.02	.625*	10.34	1.99	10.96	2.18	.690*	10.45	2.16	11.25	2.11	.570*
2. Listening	11.07	2.24	10.67	2.29	.120	11.16	2.28	11.17	2.38	.567*	11.12	2.25	10.92	2.35	.348*
3. Matching	10.02	2.94	10.66	1.86	.462*	10.82	2.29	10.82	2.42	.468*	10.42	2.65	10.74	2.15	.451*
4. Alphabet	14.15	2.44	15.30	1.54	.569*	14.87	1.93	15.17	2.21	.684*	14.51	2.22	15.24	1.90	.431*
5. Numbers	15.07	4.43	17.05	4.24	.704*	16.37	3.77	17.77	3.40	.617*	15.71	4.15	17.40	3.86	.698*
6. Copying	6.80	3.84	10.47	2.83	.558*	7.13	3.34	10.56	2.96	.570*	6.97	3.59	10.51	2.89	.562*
TOTAL SCORE	67.89	13.14	75.90	9.95	.738*	70.90	10.06	76.68	10.40	.760*	69.38	11.78	76.28	10.15	.735*

*Significant beyond the .05 level

populations' Form-A and Mock-Up raw scores on six (6) subtest and total raw scores of the Metropolitan Readiness Test. Mock-Up raw scores which were significantly correlated with Form-A raw scores were from the subtests of Word Meaning, Listening, Matching, Alphabet, Numbers, Copying and Total raw scores; therefore, the hypotheses related to these subtests were rejected.

Ho_2o There are no statistically significant correlations between the total student populations' subtest and total raw scores on the Metropolitan Readiness Test (Form-A) and their subtest and total raw scores from a three-dimensional Mock-Up of the test.

The statistical results presented in Table 12 indicated there were significant relationships between the total student populations' Form-A and Mock-Up raw scores on five (5) subtest and total raw scores of the Metropolitan Readiness Test. Mock-Up raw scores which were significantly correlated with Form-A raw scores were from the subtests of Word Meaning, Matching, Alphabet, Numbers, Copying and Total raw scores; therefore, the hypotheses related to these subtests were rejected. However, there was no significant correlation between the Form-A and Mock-Up raw scores on the subtest of Listening, and the hypothesis related to this subtest was accepted.

Summary of Results of Hypothesis Ho_2

The results presented (Tables 10 through 12) indicated that both sex groups at each socioeconomic (SES) level had

raw scores from the Mock-Up version of the Metropolitan Readiness Test which were significantly correlated with their raw scores from the (Form-A) version of the same test. The correlation coefficients computed between the participants' Form-A and Mock-Up raw scores are presented collectively in Table 10 as a means of summarizing the results obtained in testing the fifteen sub-hypotheses of hypothesis Ho_2.

The correlation values ("r") (Table 10) show a definite pattern of significance. It should be further noted, however, that these patterns did not adhere to (SES) categories. For example, the subtest of Listening seems to be more closely associated with the student's sex than with his SES level. There were significant correlations between the Form-A and Mock-Up raw scores of females at all three SES levels. However, the Form-A/Mock-Up correlations computed for males were not significant at any of the SES levels.

The subtest of Alphabet appears to be associated with the student's socioeconomic status at two of the SES levels and with his sex at another. For example, Form-A/Mock-Up correlations were significant for both males and females at the upper SES level; Form-A/Mock-Up correlations were not significant for either the males or females at the lower SES level; Form-A/Mock-Up correlations were significant for the females but not significant for the males at the middle SES level.

Four of the subtests appear to be associated with both the student's SES level and sex. Form-A/Mock-Up correlations

for the subtests of Word Meaning, Matching, Numbers, and Copying were significant for both sexes at all three SES levels.

A summary of the correlations computed between the Total raw scores on the Form-A and the total raw scores on the Mock-Up presentation shows that the highest Form-A/Mock-Up correlations were computed for the upper SES students; the middle SES group showed the second highest correlations; and the lower SES group showed the lowest correlation coefficients, although the correlations were significant for all sex groups at all SES levels. When the correlation coefficients were compared by sex groups, the correlations computed for the females were higher than those computed for the males, although both sets of correlations were significant.

A comparison of the overall correlation coefficients computed for the three SES groups was made to determine if the Form-A/Mock-Up correlations computed for each SES group were significantly different. The correlation computed between the upper SES group's Form-A/Mock-Up Total raw scores ($r = 0.845$) was significantly higher than the correlation computed for either middle SES group on these same raw scores ($r = 0.645$) or for the lower SES group on their Form-A and Mock-Up Total raw scores ($r = 0.657$). Also, there were no differences between the correlations computed for the lower and middle SES groups on their Total raw scores. This implies that the upper SES students showed more commonality between their Form-A and Mock-Up raw scores than students

from either the middle or lower SES groups. However, there was no difference between the amount of commonality shown by the middle SES group on their Form-A and Mock-Up raw scores and the amount of commonality showed by the lower SES group on their Form-A and Mock-Up raw scores.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The overall purpose of this study was to determine the effects of two different methods of presenting testing materials on the Metropolitan Readiness Test scores of first-grade students from three socioeconomic status (SES) levels. Students from thirteen Midwest City Elementary Schools (Midwest City, Oklahoma) were classified into one of three socioeconomic status (SES) groups, and samples of ninety-four males (N=94) and ninety-three females (N=93) were tested on both the Form-A of the Metropolitan Readiness Test and the three-dimensional Mock-Up of that same test. Samples of thirty boys (N=30) and thirty girls (N=30) were randomly drawn from each of the three SES groups. Trained test administrators and proctors administered standardized tests to the selected participants to determine their level of readiness for beginning the first grade. Test materials were alternately presented to the various groups in two different ways. One method of presentation consisted of the normal administration procedures suggested in the (MRT) Administration Manual. The other method of presentation consisted of presenting the MRT materials in the form of three-dimensional Mock-Ups constructed of plastic and plexiglas figures and

symbols attached to a plexiglas base. Fourteen plexiglas panels were prepared--one for each page of the MRT (Form-A) booklet.

Primary comparisons were made by determining the differences and relationships among the six subtest and total scores from the Form-A presentation and the six subtest and total scores from the Mock-Up presentation. The results of testing the first general hypothesis indicated that in most instances both sex groups at each socioeconomic (SES) level performed better on the Mock-Up version of the Metropolitan Readiness Test material than on the paper-pencil (Form-A) version. A summary of the comparisons made between the Form-A Total scores and the Mock-Up Total scores recorded for each SES group showed that the greatest improvement resulting from the Mock-Up presentations was experienced by the lower SES group (8.10 Total points increase); the upper SES group experienced the second highest increase (6.76 Total points); and the middle SES group experienced the least increase of all (5.77 Total points). However, the amount of increase experienced by all three SES groups was significant. The overall increase experienced by the male participants (8.01 Total points) was higher than the increase experienced by the female participants (5.79 Total points). Again, it should be noted that both sex groups showed significant gains from the Form-A administration to the Mock-Up administration of the readiness test materials. The results of testing the second general hypothesis indicated that both sex groups at each

socioeconomic (SES) level had scores from the Mock-Up version of the Metropolitan Readiness Test which were significantly correlated to their scores from the paper-pencil (Form-A) version of the same test. A summary of the correlations computed between the Total scores on the Form-A and the Total scores on the Mock-Up presentation shows that the highest Form-A/Mock-Up correlations were computed for the upper SES students; the middle SES group showed the second highest correlations; and the lower SES group showed the lowest correlation coefficients, although the correlations were significant for all sex groups at all SES levels. When the correlation coefficients were compared by sex groups, the correlations computed for the males, although both sets of correlations were significant.

Comparisons of the correlation coefficients computed for each of the three socioeconomic (SES) groups were made to determine if the Form-A/Mock-Up correlation computed for each SES group's Total scores was significantly different than the Form-A/Mock-Up correlation computed between the other groups' Total raw scores. The upper SES group's Form-A/Mock-Up correlation on Total raw scores ($r=0.845$) was significantly higher than the correlation computed for either the middle SES group ($r=0.645$) or the lower SES group on their Form-A and Mock-Up Total raw scores ($r=0.657$). However, there were no significant differences between the correlations computed for the middle and lower SES groups.

Conclusions

Results of the study led to the following conclusions:

1. Each of the socioeconomic status male groups performed at a higher level on the Mock-Up form of the readiness test in the areas of numbers, copying and total raw scores with the exception of word meaning for the lower male socioeconomic group, listening for each of the male socioeconomic, matching and alphabet for the upper male socioeconomic group.

2. Each of the socioeconomic status female groups performed at a higher level on the Mock-Up form of the readiness test in the areas of copying and total raw scores with the exception of word meaning for the middle female socioeconomic, listening and matching for each of the socioeconomic groups, alphabet for the upper and middle, and numbers for the upper.

3. Each of the socioeconomic status total students performed at a higher level on the Mock-Up form of the readiness test in the areas of word meaning, numbers, copying and total raw scores with the exception of listening and matching for upper, middle and lower socioeconomic status students and alphabet for the middle socioeconomic total students.

4. Performance difference of first-grade students was comparable for upper and middle SES group in word meaning, matchings, alphabet, numbers, copying, and total raw scores with the exception of listening for the upper vs. lower socioeconomic groups.

5. The total male, female, and student populations performed at a higher level on the Mock-Up form of the readiness test in the areas of word meaning, numbers, copying and total raw scores with the exception of listening for all three groups, matching for the female group and total student group, and alphabet for the female group.

6. First-grade boys of each of the socioeconomic levels reflected a relationship in performance on the two forms of the test in the areas of word meaning, matching, numbers, copying and total raw scores with the exception of listening in each of the SES levels and alphabet in the middle and lower SES levels.

7. There is a relationship between performance on word meaning, listening, matching, numbers and copying scores of the two forms of the test for the upper, middle and lower socioeconomic females with the exception of alphabet with the lower and total raw scores for the upper socioeconomic status females.

8. First-grade students of the upper, middle, and lower socioeconomic status level reflected a relationship in performance on the two forms of the test in the areas of word meaning, matching, numbers, copying and total raw scores, with the exception of listening for the upper and lower socioeconomic groups, and alphabet for the lower socioeconomic group.

9. There is a relationship between the performance on

listening, matching, numbers, and copying of the two forms of the test between upper vs. middle, upper vs. lower, and middle vs. lower with the exception of word meaning for upper vs. lower, alphabet for each group, and total raw scores for upper vs. middle and upper vs. lower.

10. Male, female and total student groups of the first-grade population reflected a relationship between their performances on the two forms of the test in the areas of word meaning, matching, alphabet, numbers, copying, and total raw scores. The female and total student groups also showed a relationship between their performance in the area of listening. The male student groups showed no relationship between their scores in the area of listening.

Recommendations

As the present study progressed through its various stages, it was observed that many other similar studies could be conducted which would yield additional information and expand the amount of knowledge now available concerning three-dimensional Mock-Up presentations of testing materials. Some of the recommendations may prove to be beneficial to further research efforts in the area. Some of the more pertinent recommendations are as follows:

1. Another study could be conducted using only students from the upper and lower SES levels. This would maximize the contrasts caused by socioeconomic differences.

2. Additional studies could be conducted in which the

variables of intelligence and age would be controlled. These two factors may make a difference on the students' performance at the first-grade level.

3. Additional studies could be conducted in which the students' familiarity with the printed-page material is determined by a more direct method than inferring it from the parent's socioeconomic level. For instance, the student's familiarity with printed-page material could be determined from questionnaires completed by the parents. Questions would be asked about the number and frequency of books read by each child, the amount of time spent watching television, the type of television programs watched, the number and type of weekly, daily, and monthly subscriptions taken by each student's family, etc.

4. A study could be conducted using different forms of the Metropolitan Readiness Test as well as other paper-pencil tests. Such studies might also include general intelligence tests.

APPENDIX A

SURVEY INSTRUMENT USED IN DETERMINING THE STUDENTS' SOCIOECONOMIC STATUS

APPENDIX A

QUESTIONNAIRE FOR DETERMINING SOCIO-ECONOMIC STATUS

To the Parent:

The information requested on this form is needed as part of a research study which is being conducted on 180 boys and girls in the first-grade classes of the Midwest City Public School System. The purpose of the study is to determine the relationship between readiness and status. Your cooperation in completing and returning this form, as soon as possible, will be greatly appreciated.

Pupil's name: _____ Birthday _____
(First) (Middle) (Last) (Month) (Day) (Year)

Pupil's school _____ Did you attend here last year? _____

Pupil's address: _____

What is the pupil's race? Check one: White_____ Negro_____ Indian_____

Mexican_____ Other_____

What kind of work does the pupil's father or guardian, do? _____

Tell what kinds of work he does in a factory, or store or office. _____

If he has a title, like watchman, foreman, clerk, manager, president, owner, etc., write it here _____

What other kind of work has the father ever done? _____

How often is the father paid? Check one: Every week_____ Once every two weeks_____ Once a month_____ By the day_____ In business for himself_____

What kind of work does the pupil's mother do? _____

What other kind of work has she ever done? _____

Grade, or year of school completed by the pupil's father. Circle one:

Grade School								High School				College							
1	2	3	4	5	6	7	8	1	2	3	4	1	2	3	4	5	6	7	8

Grade, or year of school completed by the pupil's mother. Circle one:

Grade School								High School				College							
1	2	3	4	5	6	7	8	1	2	3	4	1	2	3	4	5	6	7	8

Was the father born in the United States?_____ Was the mother?_____

What type of dwelling do you live in? Check one:
Apartment house_____ Duplex_____ Single-family dwelling_____

How many rooms are there in the dwelling in which you live? _____

APPENDIX B

FORM-A AND MOCK-UP RAW SCORES FROM THE METROPOLITAN READINESS TEST FOR EACH SEX GROUP AT THE THREE SOCIOECONOMIC LEVELS

APPENDIX B

TABLE 13

FORM-A AND MOCK-UP RAW SCORES FROM THE METROPOLITAN READINESS TEST FOR THE UPPER SOCIOECONOMIC STATUS MALES

Subject Number	Sex	FORM-A READINESS SCORES							MOCK-UP READINESS SCORES						
		Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL	Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL
01		10	15	13	15	16	6	75	10	12	9	16	15	11	73
02		11	10	6	8	9	2	46	10	8	9	14	13	9	63
03		8	8	10	14	17	6	63	12	12	14	14	20	8	80
04		8	10	12	12	14	5	61	11	9	10	12	13	14	69
05		15	13	10	15	21	11	85	14	13	12	15	21	14	89
06		9	10	13	16	18	9	75	13	11	11	15	21	13	84
07		12	12	7	15	24	14	84	13	14	12	16	23	14	92
08		12	13	10	16	19	8	78	14	11	11	16	19	12	83
09		8	13	8	15	16	4	64	9	12	8	16	19	11	75
10		9	13	9	15	13	3	62	11	9	8	14	15	13	70
11		12	11	12	16	13	3	67	13	9	13	16	17	8	76
12		12	13	11	12	8	3	59	13	11	11	15	15	6	71
13		13	12	7	16	17	9	74	12	10	9	16	22	13	82
14		12	13	8	15	14	3	65	13	11	10	16	19	6	75
15		15	10	10	11	10	4	60	13	10	10	16	16	4	69
16		10	14	10	15	9	6	64	12	13	8	16	19	5	73

Table 13 Continued

Subject Number	Sex	FORM-A READINESS SCORES							MOCK-UP READINESS SCORES						
		Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL	Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL
17		9	11	9	13	13	4	59	11	16	13	15	18	6	79
18		8	10	10	13	11	5	57	14	13	12	15	14	10	78
19		4	8	5	4	7	3	31	6	11	7	7	9	4	44
20		8	12	10	15	20	21	67	10	8	10	15	20	10	73
21		8	8	3	5	11	1	36	9	10	7	11	12	8	57
22		8	9	9	8	8	1	43	10	13	8	12	8	6	57
23		13	15	13	16	19	11	87	14	8	13	16	17	11	79
24		8	10	10	7	7	5	47	12	8	9	13	4	8	54
25		11	10	11	16	10	14	72	10	6	11	16	10	14	67
26		7	10	14	16	11	10	68	7	8	10	16	13	9	63
27		10	12	10	7	8	2	49	8	8	9	12	7	5	49
28		9	12	12	12	15	7	67	9	10	10	16	12	13	70
29		11	13	14	16	23	9	86	14	11	14	16	19	13	97
30		9	13	14	16	14	9	75	9	6	11	16	11	11	74
31		8	13	9	14	13	4	61	8	11	8	14	12	9	62
32		9	16	10	15	17	7	74	11	9	12	15	20	10	77
Mean (X). . .		9.9	11.6	10.0	13.1	13.9	6.5	64.4	11.1	10.3	10.3	12.9	15.4	9.6	72.0
Standard Deviation (S).		2.4	2.1	2.6	3.7	4.7	4.4	13.9	2.2	2.3	2.0	3.1	4.8	2.2	11.8

TABLE 14

FORM-A AND MOCK-UP RAW SCORES FROM THE METROPOLITAN READINESS TEST FOR THE UPPER SOCIOECONOMIC STATUS FEMALES

Subject Number	Sex	FORM-A READINESS SCORES							MOCK-UP READINESS SCORES						
		Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL	Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL
01		4	8	8	5	11	1	45	5	9	12	5	12	0	60
02		9	10	9	9	9	3	67	9	11	11	16	11	12	81
03		11	10	11	14	12	4	62	10	8	10	16	14	7	65
04		12	13	8	12	21	5	71	13	14	12	14	19	6	78
05		10	11	12	16	22	11	82	13	13	11	16	21	14	88
06		8	6	5	15	16	5	55	5	11	6	14	14	12	62
07		6	8	8	14	10	5	51	5	10	6	16	13	7	57
08		9	11	11	16	15	7	69	7	9	7	15	18	7	63
09		12	9	13	16	15	7	72	12	8	13	16	14	14	77
10		9	11	8	16	19	14	79	12	11	12	16	20	14	85
11		13	15	10	16	19	8	81	14	13	12	16	20	9	84
12		11	9	14	16	16	7	73	9	10	8	16	16	10	69
13		7	11	10	16	20	5	69	11	6	13	16	19	11	76
14		11	15	12	16	13	4	71	14	12	11	16	23	10	86
15		8	9	6	8	10	4	45	10	9	11	5	12	7	54
16		11	12	9	12	14	6	64	12	10	9	4	16	10	61

Table 14 Continued

Subject Number	Sex	FORM-A READINESS SCORES							MOCK-UP READINESS SCORES						
		Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL	Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL
17		12	11	9	16	15	9	72	11	10	11	15	14	11	72
18		9	12	11	16	18	10	76	9	10	11	16	18	11	75
19		8	12	12	15	20	5	72	8	10	11	15	18	13	75
20		11	12	13	16	20	6	78	13	10	13	16	19	13	84
21		12	8	4	14	14	2	54	13	8	6	16	18	12	73
22		11	13	10	15	18	3	70	11	14	12	16	18	7	78
23		11	11	10	16	12	4	64	8	10	9	16	17	12	72
24		11	12	12	14	18	12	79	12	13	14	14	22	15	88
25		8	12	13	16	20	7	76	11	9	12	16	18	10	76
26		12	12	8	16	14	10	72	11	12	12	16	14	10	75
27		9	12	13	15	22	13	84	11	14	13	16	23	12	89
28		8	12	11	16	18	7	72	12	14	9	16	17	12	80
29		9	14	12	10	18	7	70	11	14	11	16	19	12	83
30		9	14	11	15	20	11	80	11	13	13	16	19	13	85
Mean (X)		9.7	11.2	10.1	14.2	16.3	6.7	69.2	10.4	10.8	10.7	14.6	17.2	10.4	75.0
Standard Deviation(S)		2.1	2.1	2.5	2.8	3.8	3.3	10.4	2.5	2.2	2.3	3.4	3.2	3.2	9.9

TABLE 15

FORM-A AND MOCK-UP RAW SCORES FROM THE METROPOLITAN READINESS TEST FOR THE MIDDLE SOCIOECONOMIC STATUS MALES

Subject Number	Sex	FORM-A READINESS SCORES							MOCK-UP READINESS SCORES						
		Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL	Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL
01		10	11	14	16	14	8	73	11	15	10	16	16	10	78
02		7	10	9	11	10	1	48	10	11	13	16	14	3	67
03		10	9	10	15	15	13	72	8	9	11	16	17	13	74
04		9	11	8	15	17	7	67	7	5	7	14	12	13	58
05		11	14	13	16	19	14	87	12	13	9	16	21	13	84
06		10	7	11	14	12	5	59	10	10	10	16	15	10	71
07		15	12	13	16	22	7	85	14	10	14	16	25	7	86
08		10	11	14	11	16	5	67	8	9	13	12	14	13	69
09		11	14	2	15	19	5	85	12	15	9	16	21	13	86
10		14	11	10	16	21	6	78	14	10	10	16	20	13	83
11		12	8	6	14	11	2	52	12	9	8	16	17	6	68
12		9	8	0	16	14	7	54	11	11	11	16	17	14	80
13		7	9	9	16	15	4	60	13	7	11	16	18	13	78
14		9	8	9	16	18	7	67	12	7	9	15	14	8	65
15		10	14	10	5	13	1	53	12	14	11	16	18	6	77
16		5	11	11	13	10	4	54	10	9	13	16	18	7	73

Table 15 Continued

Subject Number	Sex	FORM-A READINESS SCORES							MOCK-UP READINESS SCORES						
		Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL	Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL
17		11	9	10	16	19	5	70	11	11	8	16	17	10	73
18		13	14	9	16	13	8	73	12	11	9	16	14	13	75
19		11	12	11	15	13	10	72	11	9	10	15	15	6	66
20		11	11	9	14	12	4	61	10	11	10	16	10	9	66
21		14	13	12	15	20	13	87	14	10	11	16	18	13	82
22		13	13	13	16	21	13	89	13	12	12	16	20	13	86
23		12	9	13	15	19	8	76	13	10	11	15	18	13	80
24		10	13	9	10	13	13	73	12	11	10	15	16	13	77
25		12	11	12	16	12	6	69	14	13	11	16	23	14	91
26		10	6	13	16	18	4	87	12	11	12	16	20	12	83
27		7	9	10	14	8	3	51	9	12	12	15	15	11	74
28		8	11	9	15	13	3	59	8	10	9	13	15	9	64
29		12	9	10	16	14	8	69	13	13	12	16	16	12	82
30		13	14	12	16	22	10	87	15	8	11	16	22	12	84
31		8	10	7	13	13	5	56	10	10	6	16	19	8	69
32		7	11	13	13	18	11	73	11	11	12	14	19	12	79
Mean (X)		10.4	10.8	9.9	14.5	15.0	6.9	69.1	11.5	10.6	10.5	15.5	17.4	10.6	76.0
Standard Deviation (S)		2.3	2.2	3.2	2.4	4.5	3.6	12.1	2.0	2.2	1.8	1.0	3.2	2.9	7.9

TABLE 16

FORM-A AND MOCK-UP RAW SCORES FROM THE METROPOLITAN READINESS TEST FOR THE MIDDLE SOCIOECONOMIC STATUS FEMALES

Subject Number	Sex	FORM-A READINESS SCORES							MOCK-UP READINESS SCORES						
		Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL	Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL
01		9	5	3	12	7	3	39	9	3	4	10	7	2	35
02		10	10	11	14	14	3	62	11	10	13	14	18	5	71
03		13	14	13	16	22	4	82	13	15	11	16	20	11	86
04		10	11	4	15	13	3	56	11	13	8	16	18	8	74
05		12	10	11	16	15	2	66	11	10	10	15	16	5	67
06		10	10	12	16	23	13	84	11	8	13	16	21	14	83
07		14	14	7	15	17	3	70	13	11	7	16	18	8	73
08		8	11	12	16	24	4	75	11	11	11	16	24	13	86
09		12	13	11	16	13	10	75	12	10	5	15	15	10	67
10		12	15	14	15	17	10	83	12	12	13	16	17	12	82
11		10	10	11	12	16	10	69	10	14	10	15	19	14	82
12		12	14	12	14	12	3	67	8	13	13	16	18	7	75
13		4	11	12	12	10	8	56	6	8	9	11	11	8	53
14		8	12	9	15	16	7	67	7	10	13	13	15	10	68
15		11	10	11	15	16	10	73	7	13	8	16	16	12	72
16		12	16	11	15	15	5	74	11	13	11	16	18	8	77

Table 16 Continued

Subject Number	Sex	FORM-A READINESS SCORES							MOCK-UP READINESS SCORES						
		Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL	Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL
17		10	10	11	16	18	8	73	11	14	14	16	24	13	92
18		13	16	13	16	19	9	86	15	15	10	16	23	10	89
19		12	13	12	16	13	4	70	14	15	13	15	18	8	83
20		11	11	12	16	19	13	82	11	10	11	15	18	12	77
21		12	11	12	11	12	10	68	10	10	13	13	13	14	73
22		7	9	13	16	10	11	66	12	10	12	16	19	14	83
23		9	12	14	15	19	7	76	9	14	12	16	22	13	86
24		12	8	11	16	10	5	62	15	10	14	16	19	14	88
25		8	9	11	15	4	5	52	10	11	8	16	13	10	68
26		10	12	9	14	16	3	64	9	11	8	12	12	10	62
27		8	8	12	15	14	5	62	8	7	10	15	17	11	68
28		12	10	13	16	16	6	73	10	10	13	16	19	9	77
29		12	14	11	16	17	13	83	13	12	12	15	16	13	81
30		8	12	13	16	18	10	77	10	12	10	16	18	13	79
31		9	11	13	16	21	14	84	10	10	12	16	19	13	80
32		7	7	12	13	17	7	63	4	10	8	16	13	9	60

Table 16 Continued

Subject Number	Sex	FORM-A READINESS SCORES							MOCK-UP READINESS SCORES						
		Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL	Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL
33		11	13	6	16	15	7	68	14	11	10	16	21	9	81
Mean ($\bar{X}$)		10.2	11.2	11.1	14.9	15.4	7.1	70.0	10.4	11.1	10.6	15.1	17.3	10.5	74.9
Standard Deviation (S)		2.2	2.5	2.5	1.5	4.4	3.6	10.6	2.5	2.6	2.6	1.6	3.7	3.2	11.6

TABLE 17

FORM-A AND MOCK-UP RAW SCORES FROM THE METROPOLITAN READINESS TEST FOR THE LOWER SOCIOECONOMIC STATUS MALES

Subject Number	Sex	FORM-A READINESS SCORES							MOCK-UP READINESS SCORES						
		Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL	Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL
01		13	14	12	16	16	3	74	14	11	10	16	17	10	78
02		11	12	13	12	16	12	76	12	11	13	16	23	13	88
03		13	8	11	16	19	9	76	11	7	11	16	21	12	78
04		9	11	11	13	14	8	66	13	11	11	15	13	12	75
05		14	12	13	16	14	10	79	15	10	12	16	16	14	83
06		12	12	11	16	17	6	74	10	12	11	15	21	11	80
07		11	12	9	11	14	6	63	11	10	12	16	20	11	80
08		11	5	10	11	12	11	60	13	13	16	21	16	13	92
09		16	14	13	14	17	11	85	14	16	12	16	23	11	92
10		11	10	13	16	18	10	78	10	16	13	16	23	10	88
11		10	8	8	12	11	4	53	10	6	10	16	13	12	67
12		10	11	4	16	8	2	51	10	11	11	15	10	13	70
13		13	13	13	16	22	5	82	14	10	14	16	25	10	89
14		13	13	13	16	22	4	75	13	9	11	16	21	11	81
15		9	9	9	16	16	3	62	9	12	10	15	14	9	69
16		12	10	10	15	20	5	72	11	10	10	15	13	11	70

Table 17 Continued

Subject Number	Sex	FORM-A READINESS SCORES							MOCK-UP READINESS SCORES						
		Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL	Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL
17		8	13	13	16	16	12	78	12	12	13	16	20	12	85
18		10	12	10	15	19	9	75	11	12	10	15	17	9	74
19		13	13	12	16	21	10	85	14	14	11	16	21	11	87
20		12	12	11	15	22	4	76	10	12	11	16	19	10	78
21		13	13	10	15	17	4	72	14	13	16	16	23	8	90
22		2	6	9	14	15	6	52	10	8	10	16	17	8	69
23		10	12	13	15	14	11	75	9	9	13	16	16	14	77
24		11	10	13	16	15	8	73	13	12	12	16	18	4	75
25		12	14	13	16	20	10	85	12	14	11	16	21	12	86
26		11	12	10	15	20	11	79	11	13	12	16	18	10	80
27		15	12	11	16	20	7	81	15	10	9	16	21	11	82
28		11	14	11	16	18	8	78	10	9	13	15	18	13	78
29		11	13	13	16	19	11	83	11	15	13	16	21	14	90
30		14	14	13	14	21	12	88	13	15	10	16	23	14	91
31		14	14	14	16	19	12	89	14	14	13	16	21	14	92
Mean ($\bar{X}$)		10.8	11.1	11.2	15.5	17.4	7.5	73.5	11.9	11.6	11.2	15.9	18.8	10.8	80.1
Standard Deviation (S)		2.6	2.2	1.8	0.9	2.7	3.2	9.0	1.7	2.4	2.5	0.3	3.1	2.8	9.0

TABLE 18

FORM-A AND MOCK-UP RAW SCORES FROM THE METROPOLITAN READINESS TEST FOR THE LOWER SOCIOECONOMIC STATUS FEMALES

Subject Number	Sex	FORM-A READINESS SCORES							MOCK-UP READINESS SCORES						
		Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL	Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL
01		8	10	14	16	14	6	68	10	7	7	16	15	11	66
02		6	9	11	16	14	5	61	9	12	12	16	16	13	78
03		10	10	9	16	14	5	64	12	8	6	16	10	2	54
04		12	8	11	16	21	11	79	11	11	9	16	21	12	80
05		12	10	11	16	18	6	73	14	15	12	16	22	11	90
06		10	13	11	16	22	8	80	15	13	12	16	25	14	95
07		11	11	9	15	20	8	74	13	12	8	16	20	13	82
08		11	6	13	16	17	4	67	11	11	13	16	20	10	81
09		14	11	11	16	18	4	74	14	14	13	16	21	11	89
10		10	10	11	15	15	6	67	11	14	13	15	17	12	82
11		8	9	7	12	13	2	51	10	9	5	16	16	10	66
12		13	9	13	16	14	3	68	12	10	14	16	20	9	81
13		13	10	11	16	16	5	71	13	8	10	16	15	11	73
14		12	12	12	16	17	3	72	12	10	13	16	16	10	77
15		9	13	8	15	15	9	69	12	14	13	16	18	10	83
16		10	9	9	15	16	13	72	10	9	9	15	16	13	72

Table 18 Continued

Subject Number	Sex	FORM-A READINESS SCORES							MOCK-UP READINESS SCORES						
		Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL	Word Meaning	Listening	Matching	Alphabet	Numbers	Copying	TOTAL
17		10	9	8	11	8	2	67	10	7	10	16	12	10	65
18		11	12	13	16	19	9	80	12	10	12	16	19	12	81
19		10	8	9	13	12	8	60	11	14	11	14	15	11	76
20		12	11	8	13	13	1	58	11	13	11	16	17	7	75
21		6	7	0	8	2	3	26	13	13	9	13	13	6	67
22		13	6	6	16	19	2	62	13	9	11	16	19	7	75
23		11	12	7	15	17	10	72	13	12	8	15	19	14	81
24		12	13	10	16	18	9	78	13	9	10	16	21	13	82
25		12	11	13	16	21	7	80	12	12	14	16	23	12	89
26		10	11	11	16	20	9	77	12	12	9	16	20	11	80
27		14	13	13	16	16	12	84	13	11	13	16	22	12	87
28		12	14	13	16	22	12	89	13	13	11	16	24	14	91
29		12	12	11	16	19	10	80	16	14	12	16	21	13	92
Mean ($\bar{X}$)		11.5	10.8	10.2	14.5	15.9	7.0	70.3	12.1	11.2	11.3	15.3	18.4	11.2	80.0
Standard Deviation (S)		1.9	2.4	3.1	2.2	4.7	3.5	13.0	1.7	2.4	1.7	1.2	4.2	2.0	8.2

SELECTED BIBLIOGRAPHY

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Anastasi, Anne. Differential Psychology. New York. Macmillan. 1958.

Austin, Mary and Coleman, Morrison. The First R. New York. Macmillan. 1963.

Ausubel, David P. "A Teaching Strategy for Culturally Deprived Pupils: Cognitive and Motivational Considerations." School Review. 81 (Winter. 1963). pp. 454-63.

Bender, Lauretta. "The Goodenough Test (Drawing-a-man) in Chronic Encephalitis in Children." Quarterly Journal of Child Behavior. 3 (1951). pp. 449-459.

Bigelow, Elizabeth B. "School Progress of Under-Age Children," Elementary School Journal. 35. (November. 1934). pp. 186-192.

Blair, Glenn M., and R. Steward Jones. "Readiness" Encyclopedia of Educational Research. 3rd Edition. New York. The Macmillan Company. 1960.

Bond, Guy L. and Tinker, Miles A. Reading Difficulties: Their Diagnosis and Correction. Appleton-Century-Crofts. Inc. New York. 1957.

Brookover, W. B., Ann Paterson, and Shailer Thomas. "Self Concept of Ability and School Achievement." Cooperative Research Project 845. East Lansing. Office of Research and Publications. College of Education. Michigan State University. 1962.

Bruck, Max. "A Study of Age Differences and Sex Differences in the Relationship Between Self-Concept and Grade-Point Average." unpublished doctor's dissertation. Michigan State University. 1957.

Bruner, Max. "A Study of Age Differences and Sex Differences in the Relationship Between Self-Concept and Grade-Point Average." unpublished doctor's dissertation. Michigan State University. 1957.

Cavanaugh, Lyman A. "Reading Behavior with Regard for Endocrine Imbalances." Implementing the Process of Reading. Thirteenth Yearbook of the Claremont College Reading Conference. Claremont. 1948.

Chickering, Arthur W. "Self-Concept, Ideal Self-Concept and Achievement." unpublished doctor's dissertation. Columbia University. 1958.

Cohen, S. Alan. Teach Them All To Read, Theory, Methods, and Materials for Teaching the Disadvantaged. Random House. New York. 1969.

Coleman, J. M., Iscoe, Ira, and Brodsky, Marvin. "The Draw-a-Man Test as a Predictor of School Readiness and as an Index of Emotional and Physical Maturity." Pediatrics. 24. (1959).

Cook, Walter W. "Individual Differences and Curriculum Practice." Journal of Educational Psychology. 39. (1948). pp. 141-148.

Deputy, Erby C. "Predicting First Grade Reading Achievement." Teachers College Columbia University. New York. 1914.

Durkin, Delores. "Reading Instruction and the Five-Year-Old Child." Challenge and Experiment in Reading. Scholastic Magazine. New York. 1962.

Dykstra, Robert. "Auditory Discrimination Abilities and Beginning Reading Achievement." Reading Research Quarterly. 1. (Spring. 1966). p. 5-34.

_____. and Tinney, Ronald. "Sex Differences in Reading Readiness-First-Grade Achievement and Second-Grade Achievement." Reading and Realism. Volume 13. Part I. Proceedings of the Thirteenth Annual Convention. International Reading Association. Newark. Deleware. 1969.

Eames, Thomas H. "Comparisons of Children of Premature and Full Term Birth Who Fail in Reading." Journal of Educational Research. 38. (March. 1945). pp. 506-608.

Eells, Kenneth. et al. Intelligence and Cultural Differences. Chicago. The University of Chicago Press. 1951.

Fink, M. B. "Self-Concept as it Relates to Academic Under Achievement." California Journal of Educational Research. 13. (March, 1962).

Frandsen, Arden N. "Readiness for Learning." Educational Psychology. Department of Psychology. Utah State University. McGraw-Hill Book Company. New York. 1961.

Gates, Arthur I. "The Necessary Mental Age for Beginning Reading." Elementary School Journal. 37. (1937). pp. 497-508.

_____. The Improvement of Reading. Macmillan Company. New York. 1950.

Harris, Albert J. "Lateral Dominance, Directional Confusion, and Reading Disability." Journal of Psychology. 44. (October, 1957). pp. 283-294.

_____. Director, and Blanche L. Serwer. "Comparison of Reading Approaches in First-Grade Teaching With Disadvantaged Children." Cooperative Research Project No. 2677. New York. Division of Teacher Education. City University. 1966.

Harris, Dale B., A. M. Rose, Kenneth E. Clark, and Frances Valasek. "Personality Differences Between Responsible and Less Responsible Children." Journal of Genetic Psychology. Vol. 87. (1955). pp. 103-109.

Havighurst, Robert. Unpublished address presented at Fairleight Dickinson Reading Conference, Teaneck, New Jersey. 1964.

Hebb, D. O. The Organization of Behavior. Wiley, New York. 1949.

Henig, Max S. "Predictive Value of a Reading-Readiness Test and of Teacher's Forecasts." Elementary School Journal. 50. (September. 1959). pp. 41-46.

Hess, R. D. "Maternal Teaching Styles and Educational Retardation." in Torrance and Strom (eds.). Mental Health and Achievement. Wiley, New York. 1965.

Hildreth, Gertrude. "Information Tests of First Grade Children." Childhood Education IX. (May. 1933). pp. 416-420.

Hilliard, George H. and Troxell, Eleanor. "Informational Background As a Factor in Reading Readiness and Progress." Elementary School Journal. 38. (December. 1937). p. 255

Johnson, Marjorie S. "A Study of Diagnostic and Remedial Procedures in a Reading Clinic Laboratory School." Journal of Educational Research. 48. (April. 1955). pp. 565-578.

_____. "Reading Readiness." Encyclopedia of Educational Research. 3rd ed. New York. Macmillan Company. 1960.

Johnson, Roger E. "The Validity of the Clymer-Barrett Prereading Battery." The Reading Teacher. 22. (April. 1969). pp. 609-14.

Karlin, Robert. "The Prediction of Reading Success and Reading Readiness Tests." Elementary English. 34. (May. 1957). pp. 320-22.

Koppitz, Elizabeth M. The Bender Gestalt Test for Young Children. New York. Grune and Stratton. 1964.

Koppman, Patricia S. and Margaret H. La Pray. "Teacher Ratings and Pupil Reading Readiness Scores." The Reading Teacher. 22. (April. 1969).

Loban, Walter D. "The Language of Elementary School Children." Champaign. National Council of Teachers of English. 1963.

Maccoby, Eleanor E. The Development of Sex Differences. Stanford. Stanford University Press. 1966.

McCarthy, D. "Language Development in Children." in L. Carmichael (Ed.). Manual of Child Psychology. 2nd Ed. New York. Wiley. 1954.

Miller, Wilma H. "Relationship Between Mother's Style of Communication and Her Control System to the Child's Reading Readiness and Subsequent Reading Achievement in First Grade." Reading and Realism. Vol. 13. Part I. Thirteenth Annual Convention. International Reading Association. 1969.

Morphett, M. V. and Washburne, C. "When Should Children Begin to Read?" Elementary School Journal. 31. (1931). pp. 4996-503.

New York State Education Department. Bureau of School and Cultural Research. "The Education of Disadvantaged Children: A Survey of the Literature." New York. 1967.

O'Donnel, Rob C., William C. Griffin, and Raymond C. Norris. "Syntax of Kindergarten and Elementary School Children, A Tranformational Analysis." National Council of Teachers of English. 1967.

Olsen, Willard C. "Reading as a Function of the Total Growth of the Child." Reading and Pupil Development. No. 51. Chicago. 1940.

Orton, Samuel T. "An Impediment to Learning to Read--A Neurological Explanation of the Reading Disability." School and Society. 28. (September. 1928).

Pestalozzi, Johann Heinrich. The General Principles of Pestalozzi's Method. Methuen and Company, Ltd. London. 1967.

Radke-Yarrow, Marian, Helen G. Trager, and Hadasah Davis. "Social Perceptions and Attitudes of Children." Genetic Psychology Monographs. Vol. 40. 1949. pp. 327-447.

Riessman, Frank. The Culturally Deprived Child. Harper and Row. New York. 1962.

Rosenthal, Robert and Jacobsen, Lenore F. Pygmalion in the Classroom. New York. Holt, Rinehart and Winston. 1968.

Siegel, Mac. "The Personality Structure of Children With Reading Disabilities as Compared With Children Presenting Other Clinical Problems." The Nervous Child. 10. 3-4. 1954. pp. 409-414.

Sornson, H. H. "A Longitudinal Study of the Relationship Between Various Child Behavior Ratings and Success in Reading." Unpublished Ph.D. dissertation. University of Minnesota. 1950.

Stauffer, Russell G. and W. D. Hammond. "Effectiveness of a Language Arts and Basic Reader Approach to First Grade Reading Instruction." (U. S. Office of Education Cooperative Research, Project No. 2679). Newark, Del. 1965.

Stern, C., and Lombard, A. "An Instrument to Measure Visual Discrimination in Young Children." Perceptual Motor Skills. 26. (1968). pp. 1207-10.

Stevenson, Lillian P., and Robinson, Helen M. "Eye-Hand Preference, Reversals, and Reading Progress." Clinical Studies in Reading. II. Supplementary Educational Monographs, No. 77. Chicago, 1953.

Strickland, Ruth G. "The Language of Elementary School Children: Its Relationship to the Language of Reading Textbooks and the Quality of Reading of Selected Children." Bulletin of the School of Education. Indiana University. Vol. 38. No. 4. (July. 1962).

Thorndike, Edward L., Hilgard, Ernest R., and Bower, Gordon H. "Thorndike's Connectionism." Theories of Learning. Meredith Corporation. 1966.

Webster, Staten W. (ed.) The Disadvantaged Learner: Knowing, Understanding, Educating. San Francisco, California: Chandler. 1966.

Witty, Paul and Kopel, David. "Factors Associated With the Etiology of Reading Disability." Journal of Educational Research. 29. (February. 1936). pp. 119-134.

Ylisto, Ingrid P. "An Empirical Investigation of Early Reading Responses of Young Children." Reading and Realism. Vol. V. 13. Part I. Proceedings of the Thirteenth Annual Convention. International Reading Association. 1969.

Zaruba, Elizabeth A. "Objective and Subjective Evaluation at Grade One." The Reading Teacher. 22. (October. 1968). pp. 50-54.